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**Rush** . Due to Court Order in this SAWS case,  
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Access DB#

**SEARCH REQUEST FORM**

Scientific and Technical Information Center

Requester's Full Name: Vasu Jagannathan Examiner #: \_\_\_\_\_ Date: 6/18/02  
Art Unit: 1714 Phone Number 306-2777 Serial Number: SAWS Case  
Mail Box and Bldg/Room Location: CP-3, 4D01 Results Format Preferred (circle): PAPER DISK E-MAIL

**If more than one search is submitted, please prioritize searches in order of need:**  
\*\*\*\*\*  
Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched.  
Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or  
utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if  
known. Please attach a copy of the cover sheet, pertinent claims, and abstract:

Title of Invention: Improvement in the Stabilization of Vinyl Halide  
Polymers  
Inventors (please provide full names): 1) Jean-Yves CHENARD  
2) Jean-Claude MENDELSON

Earliest Priority Filing Date: Varies with claims (see below)

*\*For Sequence Searches Only\* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the  
appropriate serial number.*

See Attachment

*I will be out of the office  
tomorrow (6/19) but I'll be in  
Thurs if you have  
questions*  
K.F

| STAFF USE ONLY                         |                        | Type of Search         | Vendors and cost where applicable |
|----------------------------------------|------------------------|------------------------|-----------------------------------|
| Searcher: <u>R. Fuller</u>             | NA Sequence (#)        | STN: <u>✓</u>          |                                   |
| Searcher Phone #: _____                | AA' Sequence (#)       | Dialog _____           |                                   |
| Searcher Location: _____               | Structure (#) <u>4</u> | Questel/Orbit _____    |                                   |
| Date Searcher Picked Up: _____         | Bibliographic _____    | Dr.Link _____          |                                   |
| Date Completed: <u>6/18/02</u>         | Litigation _____       | Lexis/Nexis _____      |                                   |
| Searcher Prep & Review Time: <u>30</u> | Fulltext _____         | Sequence Systems _____ |                                   |
| Clerical Prep Time: _____              | Patent Family _____    | WWW/Internet _____     |                                   |
| Online Time: <u>100</u>                | Other _____            | Other (specify) _____  |                                   |

07/870,759

CDB + NPL

Search

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FILE 'REGISTRY' ENTERED AT 14:43:05 ON 18 JUN 2002

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STRUCTURE FILE UPDATES: 17 JUN 2002 HIGHEST RN 431874-59-8

DICTIONARY FILE UPDATES: 17 JUN 2002 HIGHEST RN 431874-59-8

TSCA INFORMATION NOW CURRENT THROUGH January 7, 2002

Please note that search-term pricing does apply when  
conducting SmartSELECT searches.

Crossover limits have been increased. See HELP CROSSOVER for details.

Calculated physical property data is now available. See HELP PROPERTIES  
for more information. See STNote 27, Searching Properties in the CAS  
Registry File, for complete details:

<http://www.cas.org/ONLINE/STN/STNOTES/stnotes27.pdf>

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FILE COVERS 1907 - 18 Jun 2002 VOL 136 ISS 25

FILE LAST UPDATED: 17 JUN 2002 (20020617/ED)

This file contains CAS Registry Numbers for easy and accurate  
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the CAS Roles thesaurus (/RL field) in this file.

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|     |       |         |               |               |                                        |
|-----|-------|---------|---------------|---------------|----------------------------------------|
| L1  | 18773 | SEA     | FILE=REGISTRY | ABB=ON        | (SN(L)S(L)C(L)H)/ELS                   |
| L2  | (     | 353067) | SEA           | FILE=REGISTRY | ABB=ON (S(L)C(L)H(L)O)/ELS(L)4/ELC.SUB |
| L3  | 38364 | SEA     | FILE=REGISTRY | ABB=ON        | L2 NOT 1-40/NR                         |
| L4  | 16503 | SEA     | FILE=REGISTRY | ABB=ON        | L3 AND ESTER                           |
| L5  | 4006  | SEA     | FILE=REGISTRY | ABB=ON        | L4 AND 2/O AND 1/S                     |
| L6  | 2424  | SEA     | FILE=REGISTRY | ABB=ON        | L5 AND 1/NC                            |
| L8  | 492   | SEA     | FILE=REGISTRY | ABB=ON        | L6 AND (MERCAPT? OR THIOL)             |
| L12 | 3157  | SEA     | FILE=HCAPLUS  | ABB=ON        | L8                                     |
| L25 | 8476  | SEA     | FILE=HCAPLUS  | ABB=ON        | L1                                     |
| L26 | 166   | SEA     | FILE=HCAPLUS  | ABB=ON        | L12 AND L25                            |

*covers 247 (i) the  
broadest + therefore  
237a and  
239 b*

*covers  
237 b  
239 b  
247 ii*

L27 136 SEA FILE=HCAPLUS ABB=ON L26 AND P/DT  
 L28 30 SEA FILE=HCAPLUS ABB=ON L26 NOT L27  
 L29 3 SEA FILE=HCAPLUS ABB=ON L28 NOT (1980-2002)/PY  
 L30 58 SEA FILE=HCAPLUS ABB=ON L27 AND US/PC  
 L31 21 SEA FILE=HCAPLUS ABB=ON L30 NOT ((1980-2002)/AY OR (1980-2002)  
 /PRY)  
 L32 78 SEA FILE=HCAPLUS ABB=ON L27 NOT US/PC  
 L33 22 SEA FILE=HCAPLUS ABB=ON L32 AND PD.B<19790828  
 L34 46 SEA FILE=HCAPLUS ABB=ON L29 OR L31 OR L33  
 L50 985 SEA FILE=REGISTRY ABB=ON L1 AND OCTYL  
 L51 1255 SEA FILE=HCAPLUS ABB=ON L50  
 L52 37 SEA FILE=HCAPLUS ABB=ON L34 AND L51  
 L53 15 SEA FILE=HCAPLUS ABB=ON L52 AND (COMPOSITION? OR .COMPNS)  
 L54 37 SEA FILE=HCAPLUS ABB=ON L34 AND (PVC OR ?VINYL?)  
 L55 38 SEA FILE=HCAPLUS ABB=ON L53 OR L54

=> d l55 all hitstr 1-38

L55 ANSWER 1 OF 38 HCAPLUS COPYRIGHT 2002 ACS  
 AN 1980:427357 HCAPLUS  
 DN 93:27357  
 TI Thermoplastic **vinyl** chloride polymers containing monoalkyltin  
 stabilizers  
 IN Abeler, Gerd  
 PA Ciba-Geigy Corp., USA  
 SO U.S., 5 pp. Cont. of U.S. Ser. No. 806,428, abandoned.  
 CODEN: USXXAM  
 DT **Patent**  
 LA English  
 IC C08K005-58; C07F007-22  
 NCL 260045750S  
 CC 36-6 (Plastics Manufacture and Processing)  
 FAN.CNT 3

|      | PATENT NO.     | KIND | DATE     | APPLICATION NO. | DATE         |
|------|----------------|------|----------|-----------------|--------------|
| PI   | US 4193913     | A    | 19800318 | US 1978-881445  | 19780227 <-- |
|      | CH 588980      | A    | 19770630 | CH 1974-620     | 19740117     |
|      | IT 1028414     | A    | 19790130 | IT 1975-19333   | 19750116     |
| PRAI | CH 1974-620    |      | 19740117 |                 |              |
|      | US 1975-540924 |      | 19750114 |                 |              |
|      | US 1975-639146 |      | 19751209 |                 |              |
|      | US 1977-806428 |      | 19770616 |                 |              |
|      | CH 1974-14308  |      | 19741025 |                 |              |

AB Monoalkyltin compd. heat stabilizers for **PVC** [9002-86-2] are  
 esp. useful in packaging materials for foodstuffs due to low toxicity.  
 Thus, 12.0 g MeSnCl<sub>3</sub> was treated with 43.9 g myristylthioglycollate [ **57414-16-1** ]  
 in the presence of 15 g NaHCO<sub>3</sub> to give methyltin  
 tris(myristyl thioglycollate) (I) [ **57414-17-2** ]. **PVC**  
 100, montan wax 0.5, monoglycerol ester 1.0, and I 1.0 part were milled at  
 190.degree. and required 25 min to give a noticeable color change.  
 ST **PVC** alkyltin thioglycollate stabilizer; food packaging  
**PVC** alkyltin stabilizer  
 IT Packaging materials  
 (for food, **vinyl** chloride copolymers as, monoalkyltin derivs.  
 as heat stabilizers for)  
 IT Heat stabilizers  
 (monoalkyltin compds., for **vinyl** chloride polymers for food  
 packaging materials)  
 IT Toxicity

(of monoalkyltin compd. heat stabilizers, for vinyl chloride polymers for food packaging materials)

IT 818-08-6  
RL: RCT (Reactant)  
(esterification of, with butylstannoic acid)

IT 68-11-1, reactions  
RL: RCT (Reactant)  
(esterification of, with dodecanol)

IT 112-53-8  
RL: RCT (Reactant)  
(esterification of, with thioglycollic acid)

IT 9002-86-2 9003-22-9  
RL: USES (Uses)  
(heat stabilizers for, monoalkyltin compds. as, for food packaging materials)

IT 26292-98-8 57414-15-0 57414-17-2  
57414-18-3 57414-19-4 57450-74-5  
72259-65-5 74142-93-1 74162-83-7  
RL: MOA (Modifier or additive use); USES (Uses)  
(heat stabilizers, for PVC)

IT 57414-16-1  
RL: RCT (Reactant)  
(reaction of, with alkyltin chlorides)

IT 22811-02-5  
RL: RCT (Reactant)  
(reaction of, with butylstannoic acid)

IT 10220-46-9  
RL: RCT (Reactant)  
(reaction of, with monobutyltin oxide)

IT 27458-93-1  
RL: RCT (Reactant)  
(reaction of, with octadecanol)

IT 27458-92-0  
RL: RCT (Reactant)  
(reaction of, with thioglycollic acid)

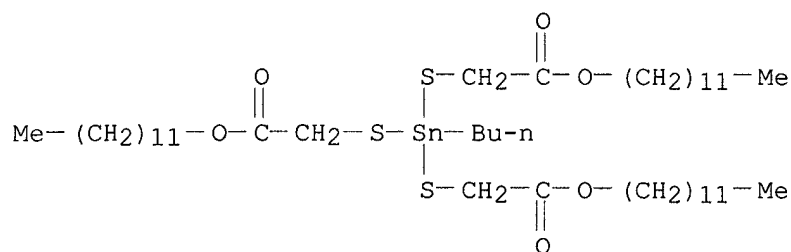
IT 993-16-8 2273-43-0  
RL: RCT (Reactant)  
(reaction of, with thioglycollic acid alkyl esters)

IT 26738-80-7  
RL: RCT (Reactant)  
(reaction of, with thioglycollic acid tetradecyl ester)

IT 26292-98-8 57414-15-0 57414-17-2  
57414-18-3 57414-19-4 57450-74-5  
72259-65-5 74142-93-1 74162-83-7  
RL: MOA (Modifier or additive use); USES (Uses)  
(heat stabilizers, for PVC)

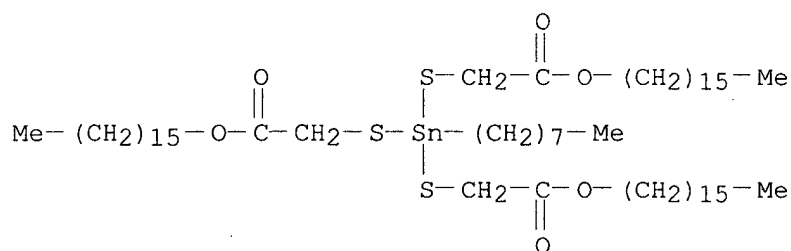
RN 26292-98-8 HCAPLUS

CN 8-Oxa-3,5-dithia-4-stannaeicosanoic acid, 4-butyl-4-[[2-(dodecyloxy)-2-oxoethyl]thio]-7-oxo-, dodecyl ester (9CI) (CA INDEX NAME)



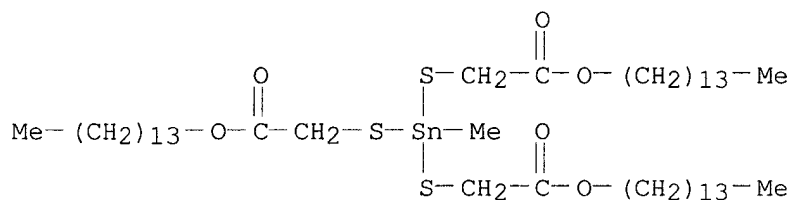
RN 57414-15-0 HCAPLUS

CN 8-Oxa-3,5-dithia-4-stannatetracosanoic acid, 4-[[2-(hexadecyloxy)-2-oxoethyl]thio]-4-octyl-7-oxo-, hexadecyl ester (9CI) (CA INDEX NAME)



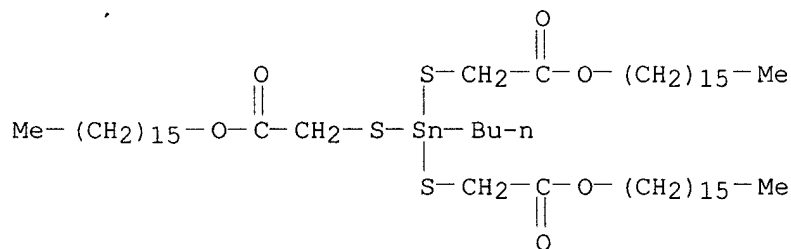
RN 57414-17-2 HCAPLUS

CN 8-Oxa-3,5-dithia-4-stannadocosanoic acid, 4-methyl-7-oxo-4-[[2-oxo-2-(tetradecyloxy)ethyl]thio]-, tetradecyl ester (9CI) (CA INDEX NAME)



RN 57414-18-3 HCAPLUS

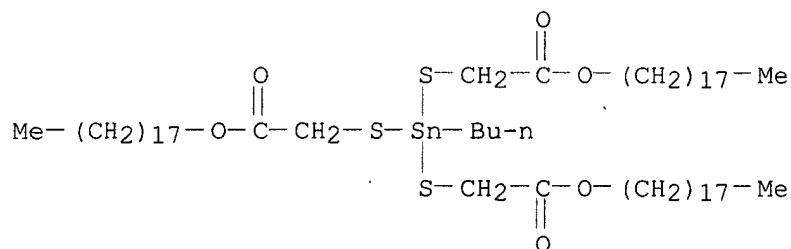
CN 8-Oxa-3,5-dithia-4-stannatetracosanoic acid, 4-butyl-4-[[2-(hexadecyloxy)-2-oxoethyl]thio]-7-oxo-, hexadecyl ester (9CI) (CA INDEX NAME)



RN 57414-19-4 HCAPLUS

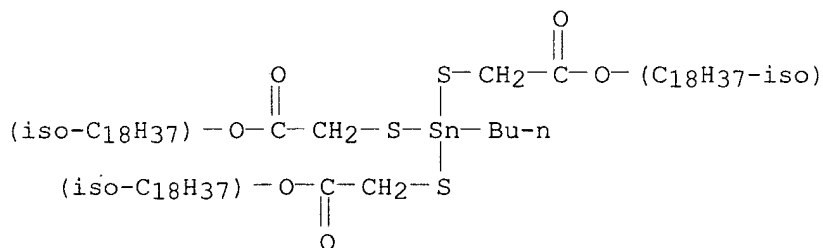
CN 8-Oxa-3,5-dithia-4-stannaheacosanoic acid, 4-butyl-4-[[2-(octadecyloxy)-2-

oxoethyl]thio]-7-oxo-, octadecyl ester (9CI) (CA INDEX NAME)



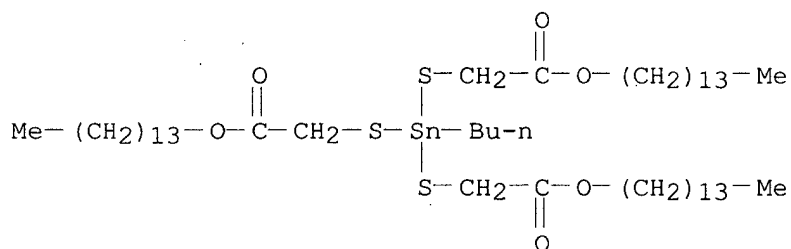
RN 57450-74-5 HCAPLUS

CN Acetic acid, 2,2'-[[butyl[[2-(isooctadecyloxy)-2-oxoethyl]thio]stannylene]bis(thio)]bis-, diisooctadecyl ester (9CI) (CA INDEX NAME)



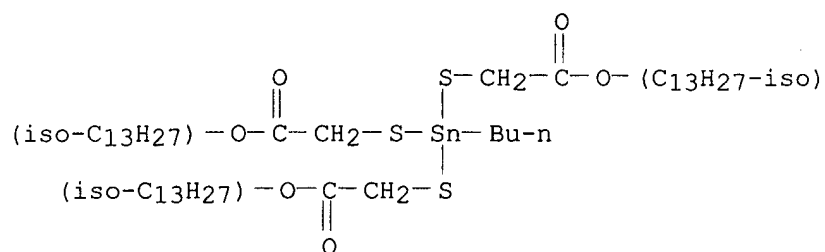
RN 72259-65-5 HCAPLUS

CN Acetic acid, 2,2',2''-[(butylstannylidyne)tris(thio)]tris-, tritetradecyl ester (9CI) (CA INDEX NAME)



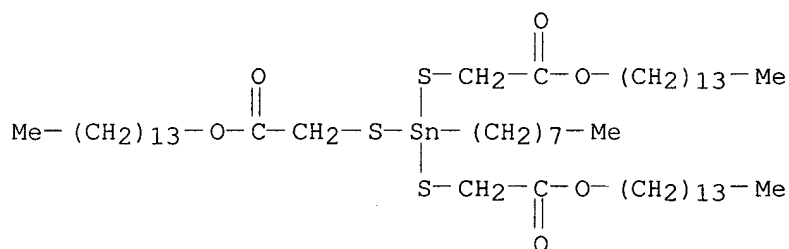
RN 74142-93-1 HCAPLUS

CN Acetic acid, 2,2',2''-[(butylstannylidyne)tris(thio)]tris-, triisotridecyl ester (9CI) (CA INDEX NAME)



RN 74162-83-7 HCAPLUS

CN 8-Oxa-3,5-dithia-4-stannadocosanoic acid, 4-octyl-7-oxo-4-[[2-oxo-2-(tetradecyloxy)ethyl]thio]-, tetradecyl ester (9CI) (CA INDEX NAME)



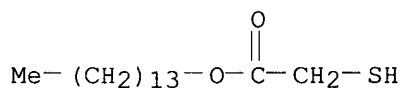
IT 57414-16-1

RL: RCT (Reactant)

(reaction of, with alkyltin chlorides)

RN 57414-16-1 HCAPLUS

CN Acetic acid, mercapto-, tetradecyl ester (9CI) (CA INDEX NAME)



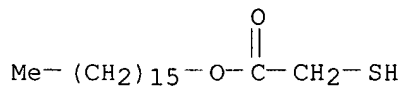
IT 22811-02-5

RL: RCT (Reactant)

(reaction of, with butylstannoic acid)

RN 22811-02-5 HCAPLUS

CN Acetic acid, mercapto-, hexadecyl ester (8CI, 9CI) (CA INDEX NAME)



IT 10220-46-9

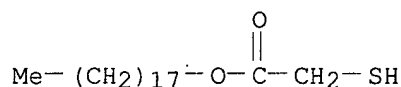
RL: RCT (Reactant)

(reaction of, with monobutyltin oxide)

RN 10220-46-9 HCAPLUS

CN Acetic acid, mercapto-, octadecyl ester (7CI, 8CI, 9CI) (CA INDEX NAME)





L55 ANSWER 2 OF 38 HCAPLUS COPYRIGHT 2002 ACS

AN 1980:7402 HCAPLUS

DN 92:7402

TI Heat stabilizers for chlorine-containing resins

IN Hirayama, Yukio; Kizaki, Yoshio; Kiryu, Mitsuaki

PA Sankyo Organic Chemicals Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 9 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC C08L027-06; C08K005-59

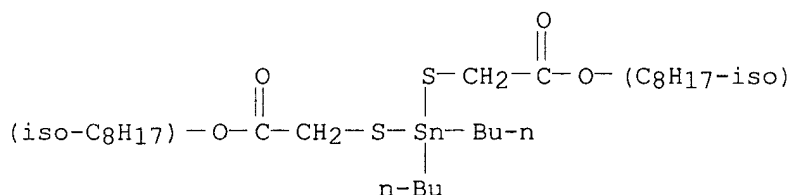
CC 36-6 (Plastics Manufacture and Processing)

FAN.CNT 1

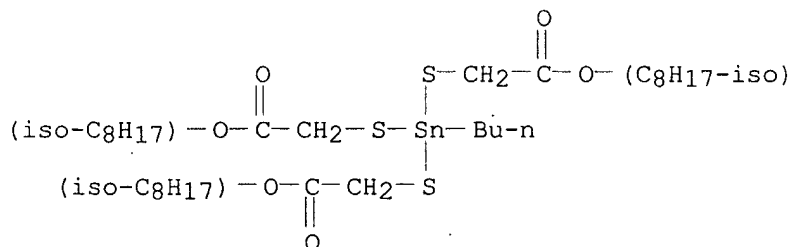
|    | PATENT NO.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | KIND | DATE     | APPLICATION NO. | DATE     |
|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|----------|-----------------|----------|
| PI | JP 54066954                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | A2   | 19790529 | JP 1977-133630  | 19771109 |
| AB | R4Sn (R = alkyl, Ph) were treated with SbR13 (R1 = Cl, Br, I), SnR24 (R2 = halogen), and then mercapto compds. in the presence of a base to give products useful as heat stabilizers for PVC [9002-86-2] and its blends with ABS [9003-56-9]. For example, Bu4Sn [1461-25-2] was treated with SbCl3 at 40.degree. for 30 min, SnCl4 at 130.degree. for 1 h, and then HSCH2CO2C8H17-iso [25103-09-7] in the presence of Et3N in benzene for 30 min to give a 38.7:33.0:28.3 mixt. (I) of BuSn(SCH2CO2C8H17-iso)3 (II) [25852-70-4], Bu2Sn(SCH2CO2C8H17-iso)2 (III), and BuSb(SCH2CO2C8H17-iso)2 [71599-34-3]. A PVC specimen contg. 2 phr I had better heat resistance (discoloration in 185.degree. air oven) than that contg. 2 phr II alone or 2 phr 1:1 II-III mixt. |      |          |                 |          |
| ST | tin mercaptide heat stabilizer PVC; antimony mercaptide heat stabilizer PVC; thermal discoloration prevention PVC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |      |          |                 |          |
| IT | Heat stabilizers<br>(organotin mercaptide-organoantimony mercaptide mixts., for PVC)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |      |          |                 |          |
| IT | Discoloration prevention<br>(thermal, of PVC, with organotin and organoantimony mercaptides)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |      |          |                 |          |
| IT | 9003-56-9<br>RL: USES (Uses)<br>(PVC blends, heat stabilizers for, organotin mercaptide-organoantimony mercaptide mixts. as)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |      |          |                 |          |
| IT | 9002-86-2<br>RL: USES (Uses)<br>(heat stabilizers for, organotin mercaptide-organoantimony mercaptide mixts. as)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |      |          |                 |          |
| IT | 25168-24-5P 25852-70-4P 71599-34-3P<br>RL: PREP (Preparation)<br>(manuf. of, as a heat stabilizer for PVC)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |      |          |                 |          |
| IT | 3026-81-1P 32251-22-2P 53202-61-2P<br>61241-05-2P 70729-71-4P 71596-45-7P<br>71596-46-8P 71596-47-9P 71596-48-0P<br>71596-49-1P 71596-50-4P 71596-51-5P<br>RL: PREP (Preparation)<br>(manuf. of, as heat stabilizer for PVC)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |      |          |                 |          |

*Not reviewed*

- IT 22205-30-7P 26401-86-5P 26401-97-8P  
 53050-37-6P 59157-52-7P 59185-95-4P  
 71596-55-9P 71596-56-0P 71599-35-4P  
 RL: PREP (Preparation)  
 (manuf. of, as heat stabilizers for PVC)
- IT 683-18-1P 1118-46-3P 5613-73-0P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)  
 (prepn. and reaction of, with mercaptide compds.)
- IT 3091-25-6P 3542-36-7P 71596-54-8P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)  
 (prepn. and reaction of, with mercapto compds.)
- IT 1461-22-9P 2587-76-0P 5613-73-0P 71596-53-7P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)  
 (prepn. and reaction of, with tin tetrachloride)
- IT 1461-25-2 3590-84-9  
 RL: RCT (Reactant)  
 (reaction of, with antimony trichloride)
- IT 60-24-2 1322-36-7 16849-98-2 25103-09-7 50448-95-8  
 71596-52-6  
 RL: RCT (Reactant)  
 (reaction of, with organotin and organoantimony chloride)
- IT 7646-78-8, reactions 25103-09-7  
 RL: RCT (Reactant)  
 (reaction of, with organotin and organoantimony chlorides)
- IT 10025-91-9  
 RL: RCT (Reactant)  
 (reaction of, with organotin compds.)
- IT 25168-24-5P 25852-70-4P  
 RL: PREP (Preparation)  
 (manuf. of, as a heat stabilizer for PVC)
- RN 25168-24-5 HCAPLUS
- CN Acetic acid, 2,2'-[(dibutylstannylene)bis(thio)]bis-, diisooctyl ester  
 (9CI) (CA INDEX NAME)



- RN 25852-70-4 HCAPLUS
- CN Acetic acid, 2,2',2''-[(butylstannylidyne)tris(thio)]tris-, triisooctyl ester (9CI) (CA INDEX NAME)



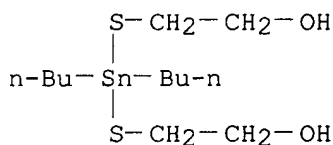
IT 3026-81-1P 32251-22-2P 53202-61-2P  
61241-05-2P 70729-71-4P 71596-46-8P  
71596-47-9P 71596-49-1P

RL: PREP (Preparation)

(manuf. of, as heat stabilizer for PVC)

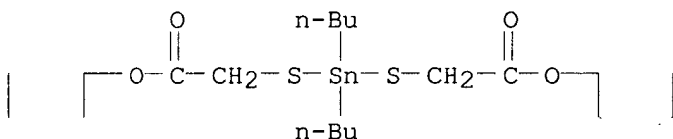
RN 3026-81-1 HCAPLUS

CN Ethanol, 2,2'-[(dibutylstannylene)bis(thio)]bis- (9CI) (CA INDEX NAME)



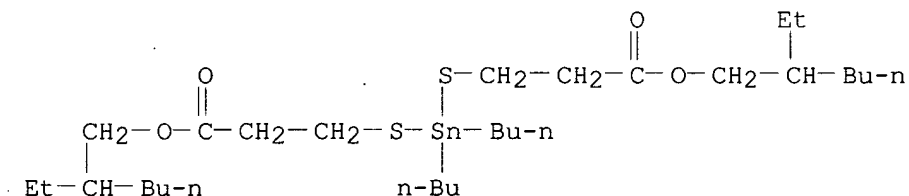
RN 32251-22-2 HCAPLUS

CN Acetic acid, 2,2'-[(dibutylstannylene)bis(thio)]bis-, dicyclohexyl ester (9CI) (CA INDEX NAME)



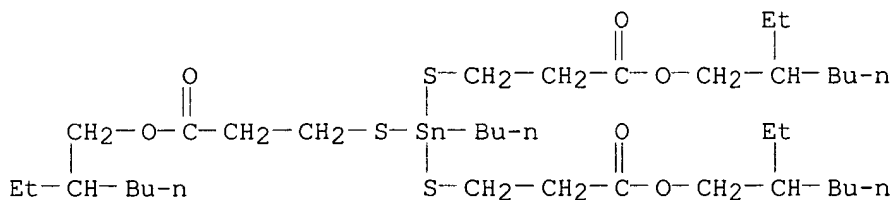
RN 53202-61-2 HCAPLUS

CN 10-Oxa-4,6-dithia-5-stannahexadecanoic acid, 5,5-dibutyl-12-ethyl-9-oxo-, 2-ethylhexyl ester (9CI) (CA INDEX NAME)



RN 61241-05-2 HCAPLUS

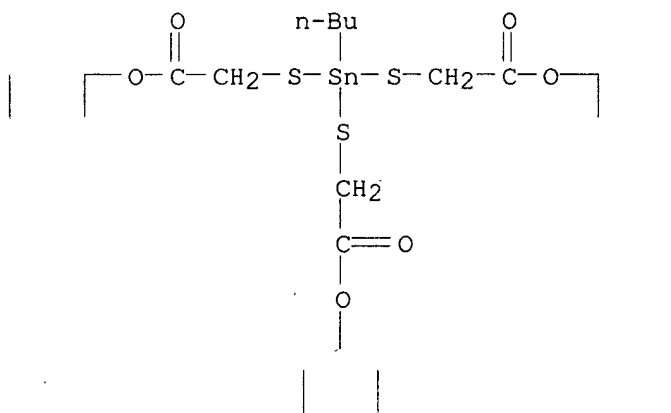
CN 10-Oxa-4,6-dithia-5-stannahexadecanoic acid, 5-butyl-12-ethyl-5-[[3-[(2-ethylhexyl)oxy]-3-oxopropyl]thio]-9-oxo-, 2-ethylhexyl ester (9CI) (CA INDEX NAME)



RN 70729-71-4 HCAPLUS

CN Ethanol, 2,2',2''-[(butylstannylidyne)tris(thio)]tris- (9CI) (CA INDEX NAME)





IT 22205-30-7P 26401-86-5P 26401-97-8P

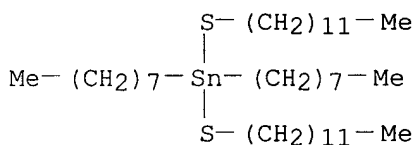
53050-37-6P 59157-52-7P 59185-95-4P

RL: PREP (Preparation)

(manuf. of, as heat stabilizers for PVC)

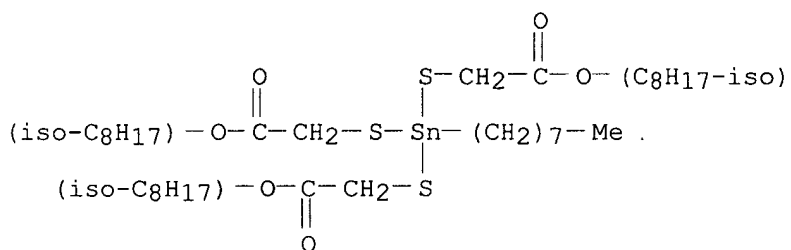
RN 22205-30-7 HCAPLUS

CN Stannane, bis(dodecylthio)dioctyl- (8CI, 9CI) (CA INDEX NAME)



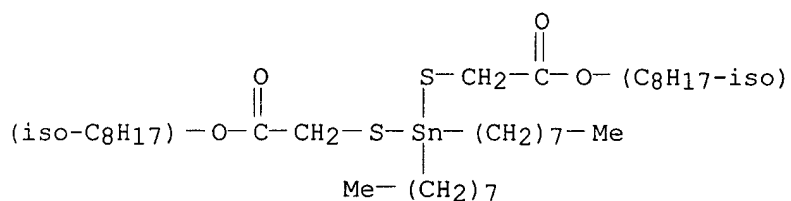
RN 26401-86-5 HCAPLUS

CN Acetic acid, 2,2',2''-[(octylstannylidyne)tris(thio)]tris-, triisooctyl ester (9CI) (CA INDEX NAME)



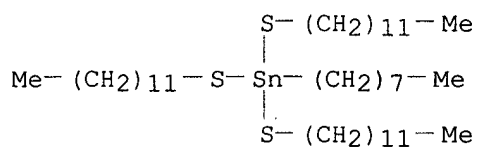
RN 26401-97-8 HCAPLUS

CN Acetic acid, 2,2'-[(dioctylstannylene)bis(thio)]bis-, diisooctyl ester (9CI) (CA INDEX NAME)



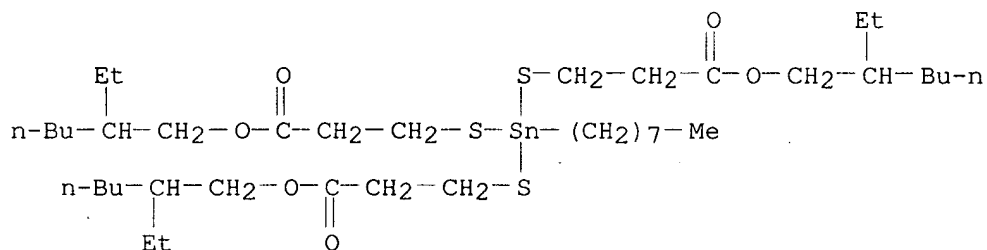
RN 53050-37-6 HCAPLUS

CN Stannane, tris(dodecylthio)octyl- (9CI) (CA INDEX NAME)



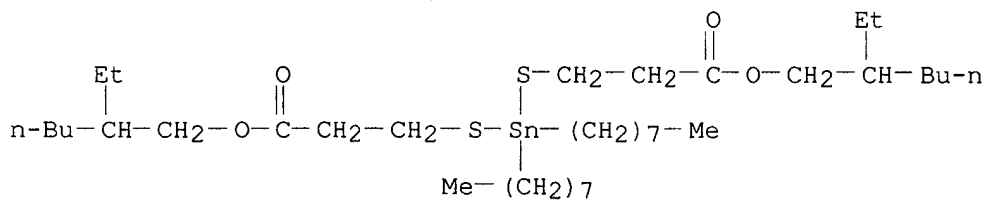
RN 59157-52-7 HCAPLUS

CN 10-Oxa-4,6-dithia-5-stannahexadecanoic acid, 12-ethyl-5-[[3-[(2-ethylhexyl)oxy]-3-oxopropyl]thio]-5-octyl-9-oxo-, 2-ethylhexyl ester (9CI) (CA INDEX NAME)



RN 59185-95-4 HCAPLUS

CN 10-Oxa-4,6-dithia-5-stannahexadecanoic acid, 12-ethyl-5,5-dioctyl-9-oxo-, 2-ethylhexyl ester (9CI) (CA INDEX NAME)



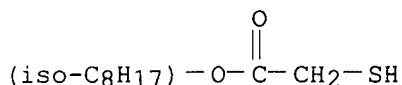
IT 25103-09-7 50448-95-8

RL: RCT (Reactant)

(reaction of, with organotin and organoantimony chloride)

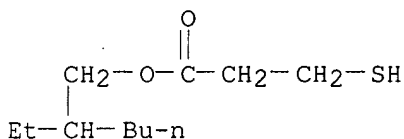
RN 25103-09-7 HCAPLUS

CN Acetic acid, mercapto-, isooctyl ester (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



RN 50448-95-8 HCAPLUS

CN Propanoic acid, 3-mercapto-, 2-ethylhexyl ester (9CI) (CA INDEX NAME)



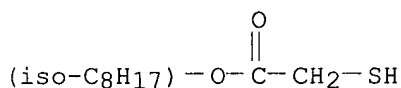
IT 25103-09-7

RL: RCT (Reactant)

(reaction of, with organotin and organoantimony chlorides)

RN 25103-09-7 HCAPLUS

CN Acetic acid, mercapto-, isooctyl ester (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



L55 ANSWER 3 OF 38 HCAPLUS COPYRIGHT 2002 ACS

AN 1979:421784 HCAPLUS

DN 91:21784

TI Heat-resistant PVC compositions

IN Kitano, Yoshikazu

PA Nitto Kasei Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 5 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC C08L027-02; C08K005-57

CC 36-6 (Plastics Manufacture and Processing)

Section cross-reference(s): 29

FAN.CNT 1

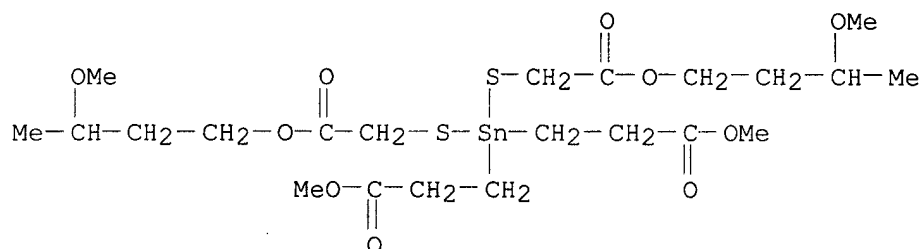
|    | PATENT NO.  | KIND | DATE     | APPLICATION NO. | DATE     |
|----|-------------|------|----------|-----------------|----------|
| PI | JP 53034846 | A2   | 19780331 | JP 1976-110629  | 19760913 |
|    | JP 54037975 | B4   | 19791117 |                 |          |

AB Heat-resistant PVC [9002-86-2] compns. contain organotin compds. (RO<sub>2</sub>CCH<sub>2</sub>CH<sub>2</sub>)<sub>2</sub>SnR<sub>1</sub>R<sub>2</sub>, (RO<sub>2</sub>CCH<sub>2</sub>CH<sub>2</sub>)<sub>2</sub>SnY, and(or) (RO<sub>2</sub>CCH<sub>2</sub>CH<sub>2</sub>)<sub>2</sub>SnR<sub>1</sub>ZSnR<sub>2</sub>(CH<sub>2</sub>CH<sub>2</sub>CO<sub>2</sub>R)<sub>2</sub> [R = C<sub>1</sub>-18 alkyl; R<sub>1</sub> = S(CH<sub>2</sub>)<sub>n</sub>CO<sub>2</sub>R<sub>3</sub>, SR<sub>3</sub>, O<sub>2</sub>CR<sub>3</sub>, O<sub>2</sub>CCH:CHCO<sub>2</sub>R<sub>3</sub>, OR<sub>3</sub>; R<sub>2</sub> = R<sub>1</sub>, Cl; R<sub>3</sub> = C<sub>1</sub>-18 alkyl, alkenyl, cycloalkyl, benzyl, alkoxyalkyl; Y = Sm, S(CH<sub>2</sub>)<sub>n</sub>CO<sub>2</sub>, O<sub>2</sub>CCH:CHCO<sub>2</sub>, S(CH<sub>2</sub>)<sub>n</sub>CO<sub>2</sub>(CH<sub>2</sub>)<sub>p</sub>O<sub>2</sub>C(CH<sub>2</sub>)<sub>n</sub>S; Z = Sm, O; m = 1-3; n = 1-4; p = 2-12]. Thus, a mixt. of 59.4 g Sn foil, 86.1 g Me acrylate [96-33-3], and 200 mL C<sub>6</sub>H<sub>6</sub> was heated to 60-70.degree. to give 154.6 g bis(carbomethoxyethyl)tin dichloride [10175-01-6], which (36.4 g) was mixed with 40.8 g isooctyl thioglycolate [25103-09-7], 100 mL C<sub>6</sub>H<sub>6</sub>, 12.2 g NH<sub>4</sub>OH, and 50 mL H<sub>2</sub>O, and dispersed. The org. layer was washed with H<sub>2</sub>O and concd. to give 65.5 g bis(carbomethoxyethyl)tin bis(isooctyl mercaptoacetate) (I) [

*Not reverse*

- 61460-21-7]. A mixt. of 100 parts PVC and 2 parts I was kneaded 3 min at 170.degree. to give a 0.5-mm sheet with better heat resistance at 190.degree. than a control contg. dioctyltin bis(isooctyl mercaptoacetate) instead of I.
- ST heat resistant PVC compn; tin deriv heat stabilizer;  
carboxyethyltin deriv heat stabilizer
- IT Heat stabilizers  
(bis(carbalkoxyethyl)tin compds., for PVC)
- IT 9002-86-2  
RL: USES (Uses)  
(heat stabilizers for, bis(carbalkoxyethyl)tin compds. as)
- IT 67651-32-5  
RL: MOA (Modifier or additive use); USES (Uses)  
(heat stabilizers, for PVC)
- IT 67649-64-3  
RL: MOA (Modifier or additive use); USES (Uses)  
(heat stabilizers, for PVC, prepn. and reactions of)
- IT 61460-21-7 61470-35-7 61470-36-8 61470-37-9  
67649-62-1 67649-63-2 67651-30-3  
67651-31-4  
RL: MOA (Modifier or additive use); USES (Uses)  
(heat stabilizers, for PVC, prepn. of)
- IT 10175-02-7P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)  
(prepn. and reaction with isooctyl mercaptopropionate)
- IT 10175-01-6P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)  
(prepn. and reactions of)
- IT 10175-03-8P 67651-33-6P  
RL: PREP (Preparation)  
(prepn. of)
- IT 7440-31-5, reactions  
RL: RCT (Reactant)  
(reaction of, with Me acrylate)
- IT 30374-01-7  
RL: RCT (Reactant)  
(reaction of, with bis(carbethoxyethyl)tin dichloride)
- IT 112-55-0 143-07-7, reactions 13040-20-5 22504-50-3  
25103-09-7 27431-40-9  
RL: RCT (Reactant)  
(reaction of, with bis(carbomethoxyethyl)tin dichloride)
- IT 96-33-3  
RL: RCT (Reactant)  
(reaction of, with tin)
- IT 67651-32-5  
RL: MOA (Modifier or additive use); USES (Uses)  
(heat stabilizers, for PVC)
- RN 67651-32-5 HCAPLUS
- CN 2,6-Dioxa-9,11-dithia-10-stannatridecan-13-oic acid, 10,10-bis(3-methoxy-3-oxopropyl)-3-methyl-7-oxo-, 3-methoxybutyl ester (9CI) (CA INDEX NAME)



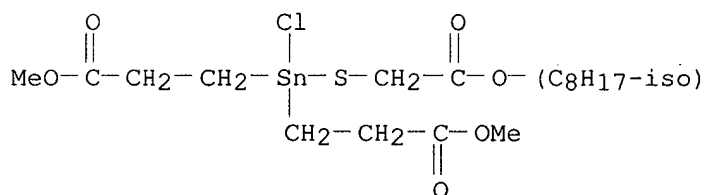


IT 67649-64-3

RL: MOA (Modifier or additive use); USES (Uses)  
(heat stabilizers, for **PVC**, prepn. and reactions of)

RN 67649-64-3 HCAPLUS

CN Propanoic acid, 3,3'-[chloro[[2-(isooctyloxy)-2-oxoethyl]thio]stannylene]bis-, dimethyl ester (9CI) (CA INDEX NAME)



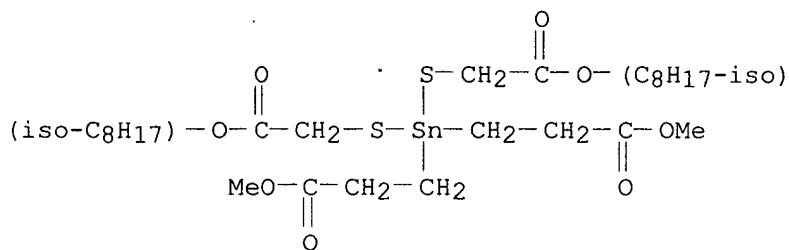
IT 61460-21-7 61470-36-8 67649-62-1

67649-63-2 67651-30-3 67651-31-4

RL: MOA (Modifier or additive use); USES (Uses)  
(heat stabilizers, for **PVC**, prepn. of)

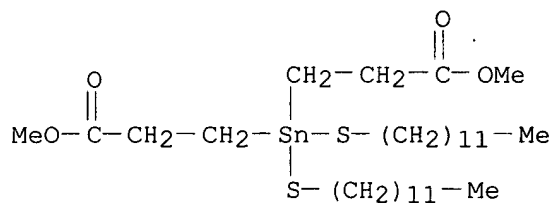
RN 61460-21-7 HCAPLUS

CN Propanoic acid, 3,3'-[bis[[2-(isooctyloxy)-2-oxoethyl]thio]stannylene]bis-  
dimethyl ester (9CI) (CA INDEX NAME)



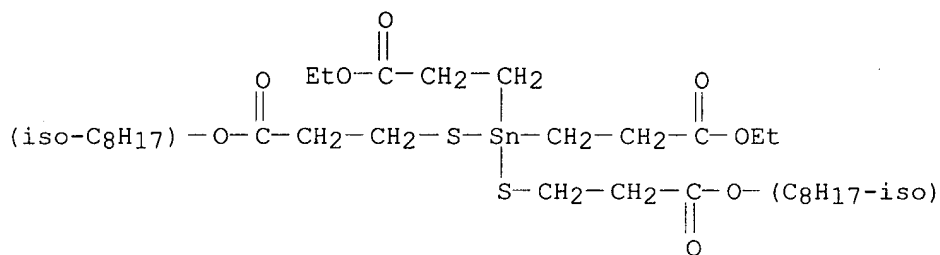
RN 61470-36-8 HCAPLUS

CN Propanoic acid, 3,3'-[bis(dodecylthio)stannylene]bis-, dimethyl ester  
(9CI) (CA INDEX NAME)



RN 67649-62-1 HCAPLUS

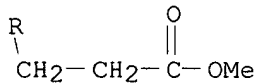
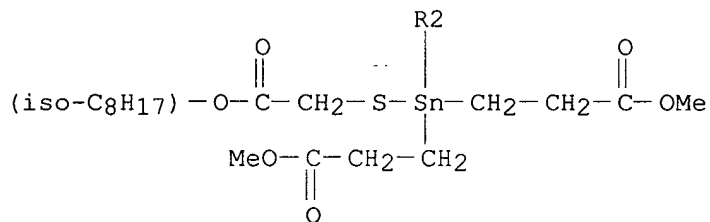
CN Propanoic acid, 3,3'-[[bis(3-ethoxy-3-oxopropyl)stannylene]bis(thio)]bis-, diisooctyl ester (9CI) (CA INDEX NAME)



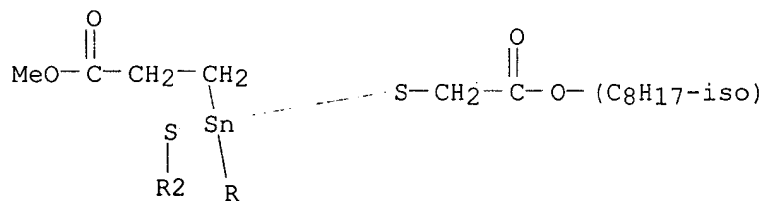
RN 67649-63-2 HCAPLUS

CN Propanoic acid, 3,3',3'',3'''-[1,3-bis[[2-(isooctyloxy)-2-oxoethyl]thio]-1,3-distannathianediylidene]tetakis-, tetramethyl ester (9CI) (CA INDEX NAME)

PAGE 1-A

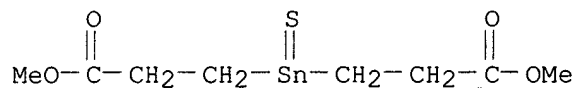


PAGE 2-A



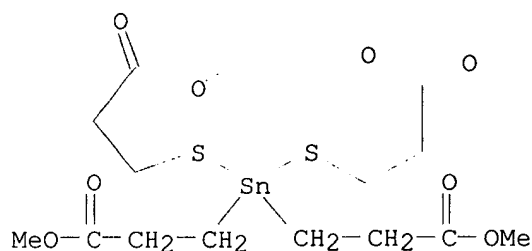
RN 67651-30-3 HCAPLUS

CN Propanoic acid, 3,3'-(thioxostannylene)bis-, dimethyl ester (9CI) (CA INDEX NAME)



RN 67651-31-4 HCAPLUS

CN 1,4-Dioxa-8,10-dithia-9-stannacyclotridecane-9,9-dipropanoic acid, 5,13-dioxo-, dimethyl ester (9CI) (CA INDEX NAME)

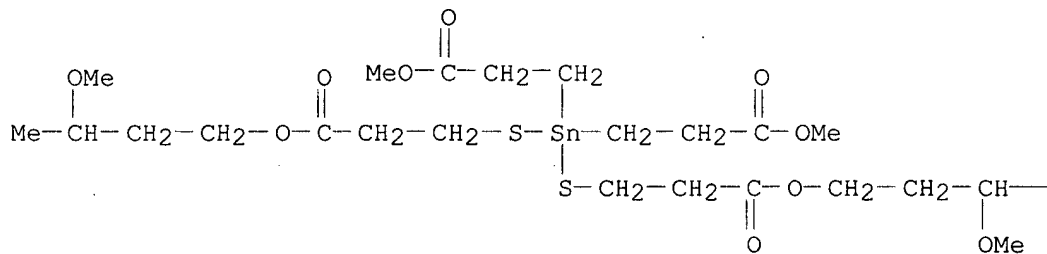


IT 67651-33-6P

RL: PREP (Preparation)  
(prepn. of)

RN 67651-33-6 HCAPLUS

CN 2,6-Dioxa-10,12-dithia-11-stannapentadecan-15-oic acid, 11,11-bis(3-methoxy-3-oxopropyl)-3-methyl-7-oxo-, 3-methoxybutyl ester (9CI) (CA INDEX NAME)



PAGE 1-A

PAGE 1-B

— Me

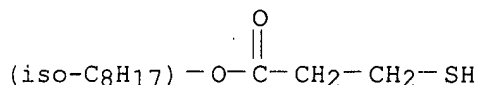
IT 30374-01-7

RL: RCT (Reactant)

(reaction of, with bis(carbethoxyethyl)tin dichloride)

RN 30374-01-7 HCAPLUS

CN Propanoic acid, 3-mercapto-, isooctyl ester (9CI) (CA INDEX NAME)



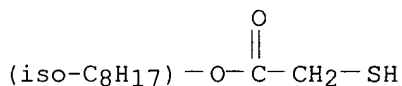
IT 25103-09-7

RL: RCT (Reactant)

(reaction of, with bis(carbomethoxyethyl)tin dichloride)

RN 25103-09-7 HCAPLUS

CN Acetic acid, mercapto-, isooctyl ester (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



L55 ANSWER 4 OF 38 HCAPLUS COPYRIGHT 2002 ACS

AN 1979:420721 HCAPLUS

DN 91:20721

TI Organotin compounds

IN Korbanka, Helmut; Scheidl, Franz

PA Hoechst A.-G., Fed. Rep. Ger.

SO Ger. Offen., 20 pp.

CODEN: GWXXBX

DT Patent

LA German

IC C07F007-22; C08K005-57; C08L027-00; C08L023-28

CC 29-8 (Organometallic and Organometalloidal Compounds)

Section cross-reference(s): 35

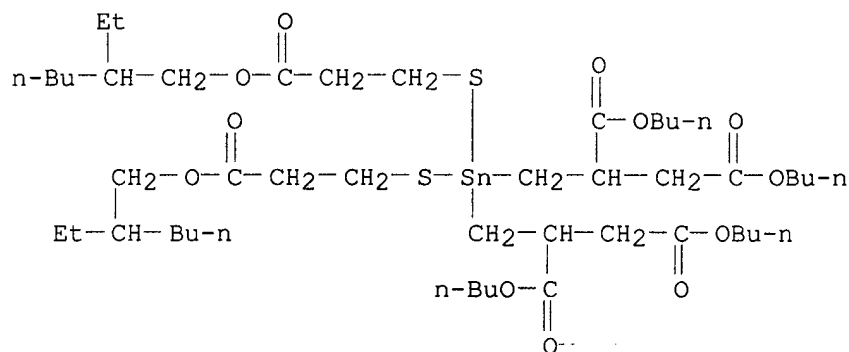
FAN.CNT 1

|      | PATENT NO.                | KIND | DATE     | APPLICATION NO. | DATE         |
|------|---------------------------|------|----------|-----------------|--------------|
| PI   | DE 2735810                | A1   | 19790215 | DE 1977-2735810 | 19770809     |
|      | DE 2735810                | B2   | 19810129 |                 |              |
|      | EP 746                    | A1   | 19790221 | EP 1978-100532  | 19780728     |
|      | EP 746                    | B1   | 19810128 |                 |              |
|      | R: BE, CH, DE, FR, GB, NL |      |          |                 |              |
|      | JP 54030119               | A2   | 19790306 | JP 1978-95878   | 19780808     |
|      | US 4237043                | A    | 19801202 | US 1978-931897  | 19780808 <-- |
|      | CA 1116625                | A1   | 19820119 | CA 1978-308882  | 19780808     |
| PRAI | DE 1977-2735810           |      | 19770809 |                 |              |

AB Approx. 20 title compds. [R1COCHR2CR3R4]2SnR52 (I) and R1COCHR2CR3R4SnR53 [II, R1 = OH, amino, alkoxy, acryloxy; R2-R4 = H, C1-30 alkyl, (CH2)nCOR1, n = 1-15; R5 = S(CH2)mCO2R6, SR6, O2CR6, O2CCH:CHCO2R6, R6 = alkyl, m = 1,2] were prepd. by reaction of I or II (R5 = halide) with R5H. Thus, 0.2 mol 2-ethylhexyl thioglycolate, 0.2 equiv. Cl, a mixt. of 59% [MeO2CCH2CH(CO2Me)CH2]2SnCl2 and 41% MeO2CCH2CH(CO2Me)CH2SnCl3, and 0.2 mol Et3N gave 69.5 g [MeO2CCH2CH(CO2Me)CH2]2Sn[SCH2CO2CH2CH2Et(CH2)3Me]2 and MeO2CCH2CH(CO2Me)CH2Sn[SCH2CO2CH2CH2Et(CH2)3Me]3. I and II were useful

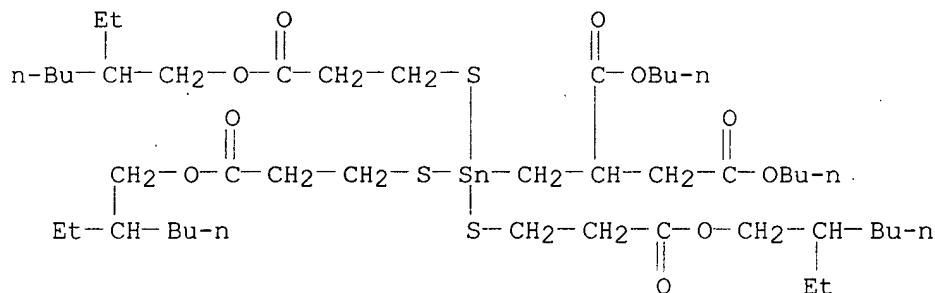
*Not reversed*

- as stabilizers for polymers, e.g., poly(vinyl chloride).
- ST polyvinyl chloride stabilizer organotin compd; polymer stabilizer organotin compd; chlorostannane mercaptan reaction; carboxylic acid chlorostannane reaction; stannane alkylthio carboxylalkyl; tin thioether; carboxylate stannyl
- IT Polymers, uses and miscellaneous  
RL: USES (Uses)  
(stabilizers for, tin compds. as)
- IT 70166-00-6P 70166-01-7P 70166-02-8P  
70166-03-9P 70166-04-0P 70166-05-1P 70166-06-2P  
70166-07-3P 70166-08-4P 70166-09-5P 70166-10-8P  
70166-11-9P 70166-12-0P 70166-13-1P  
70181-40-7P 70181-41-8P  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(prepn. and stabilizing ability of, poly(vinyl chloride))
- IT 70165-90-1P 70165-91-2P  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(prepn. of)
- IT 112-55-0 143-07-7, reactions 925-21-3 50448-95-8  
RL: RCT (Reactant)  
(reaction of, with chlorostannane)
- IT 7659-86-1  
RL: RCT (Reactant)  
(reaction of, with chlorostannanes)
- IT 70165-76-3 70165-77-4 70165-78-5 70165-79-6 70165-80-9  
70165-81-0 70165-85-4 70165-86-5 70165-87-6 70165-88-7  
70165-92-3 70165-93-4 70165-94-5 70165-95-6 70165-96-7  
70165-97-8 70165-98-9 70165-99-0  
RL: RCT (Reactant)  
(reaction of, with organotins and with carboxylic acids)
- IT 9002-86-2  
RL: PROC (Process)  
(stabilization of, with tin compds.)
- IT 77-58-7 1185-81-5 10584-98-2 15546-16-4  
RL: RCT (Reactant)  
(stabilizing activity of, for poly(vinyl chloride))
- IT 70166-00-6P 70166-01-7P 70166-02-8P  
70166-03-9P 70166-04-0P 70166-10-8P  
70166-11-9P 70166-12-0P 70166-13-1P  
70181-41-8P  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(prepn. and stabilizing ability of, poly(vinyl chloride))
- RN 70166-00-6 HCAPLUS
- CN Butanedioic acid, 2,2'-[[bis[[3-[(2-ethylhexyl)oxy]-3-oxopropyl]thio]stannylene]bis(methylene)]bis-, tetrabutyl ester (9CI) (CA INDEX NAME)



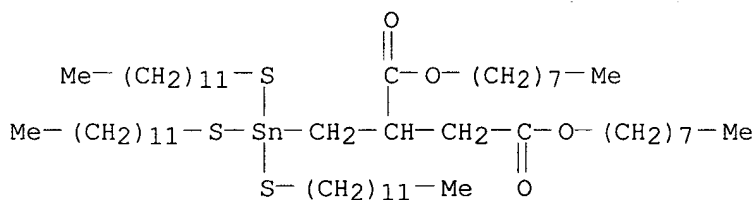
RN 70166-01-7 HCAPLUS

CN Butanedioic acid, [[tris[[3-[(2-ethylhexyl)oxy]-3-oxopropyl]thio]stannyl]methyl]-, dibutyl ester (9CI) (CA INDEX NAME)



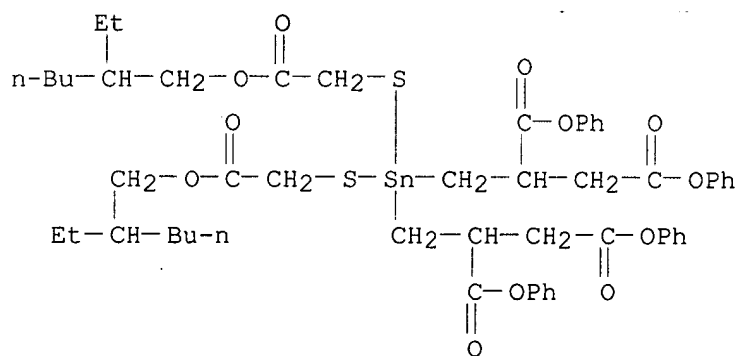
RN 70166-02-8 HCAPLUS

CN Butanedioic acid, [[tris(dodecylthio)stannyl]methyl]-, dioctyl ester (9CI) (CA INDEX NAME)



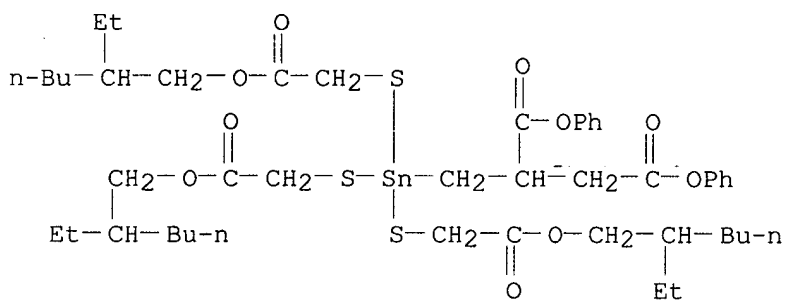
RN 70166-03-9 HCAPLUS

CN Butanedioic acid, 2,2'-[[bis[[2-[(2-ethylhexyl)oxy]-2-oxoethyl]thio]stannylene]bis(methylene)]bis-, tetraphenyl ester (9CI) (CA INDEX NAME)



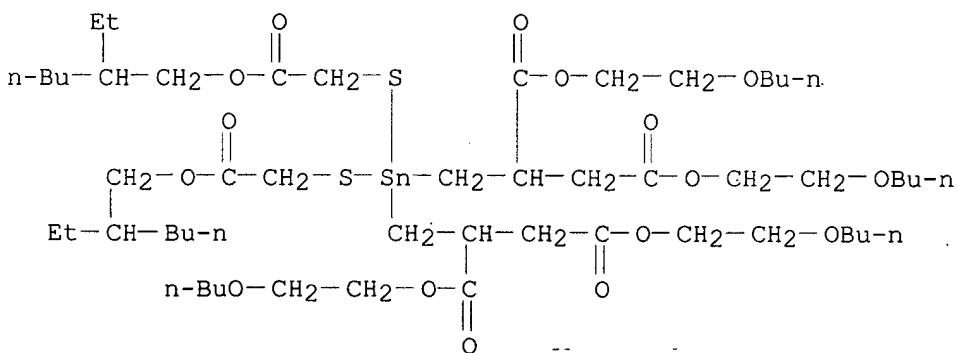
RN 70166-04-0 HCAPLUS

CN Butanedioic acid, [[tris[[2-[(2-ethylhexyl)oxy]-2-oxoethyl]thio]stannyl)methyl]-, diphenyl ester (9CI) (CA INDEX NAME)



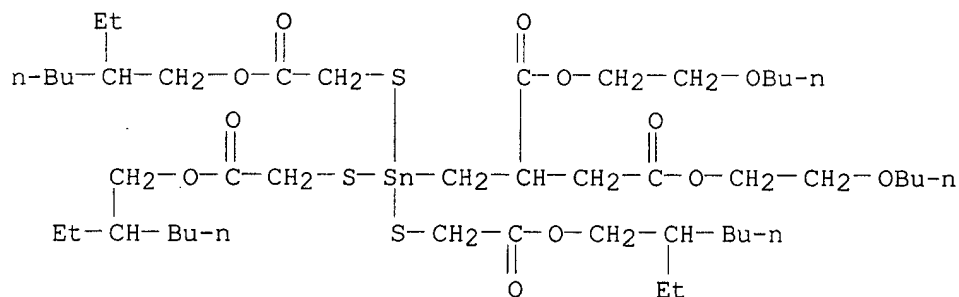
RN 70166-10-8 HCAPLUS

CN Butanedioic acid, 2,2'-[[bis[[2-[(2-ethylhexyl)oxy]-2-oxoethyl]thio]stannylene]bis(methylene)]bis-, tetrakis(2-butoxyethyl) ester (9CI) (CA INDEX NAME)



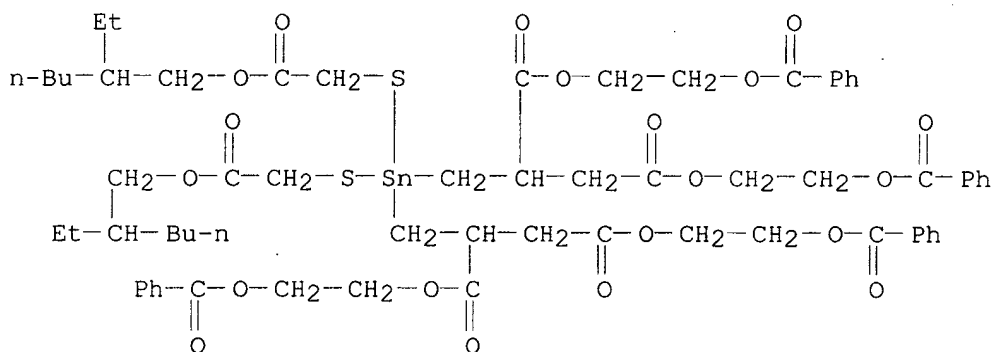
RN 70166-11-9 HCAPLUS

CN Butanedioic acid, [[tris[[2-[(2-ethylhexyl)oxy]-2-oxoethyl]thio]stannyl)methyl]-, bis(2-butoxyethyl) ester (9CI) (CA INDEX NAME)



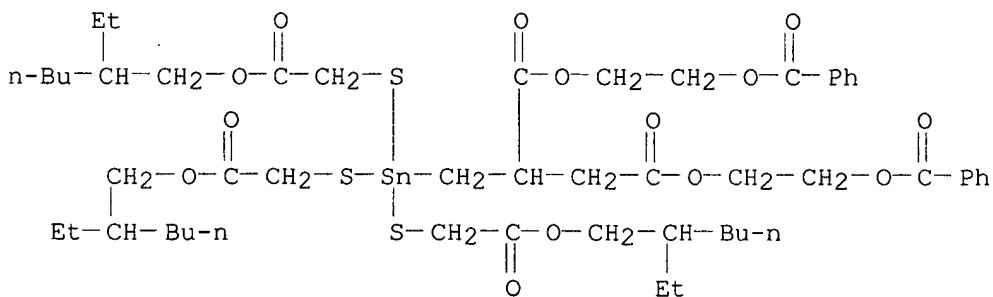
RN 70166-12-0 HCAPLUS

CN Butanedioic acid, 2,2'-[[bis[[2-[(2-ethylhexyl)oxy]-2-oxoethyl]thio]stannylene]bis(methylene)]bis-, tetrakis[2-(benzoyloxy)ethyl] ester (9CI) (CA INDEX NAME)



RN 70166-13-1 HCAPLUS

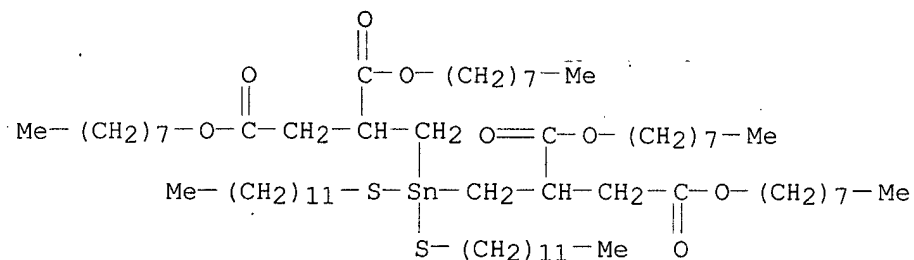
CN Butanedioic acid, [[tris[[2-[(2-ethylhexyl)oxy]-2-oxoethyl]thio]stannyl]methyl]-, bis[2-(benzoyloxy)ethyl] ester (9CI) (CA INDEX NAME)



RN 70181-41-8 HCAPLUS

CN Butanedioic acid, 2,2'-[[bis(dodecylthio)stannylene]bis(methylene)]bis-, tetraoctyl ester (9CI) (CA INDEX NAME)



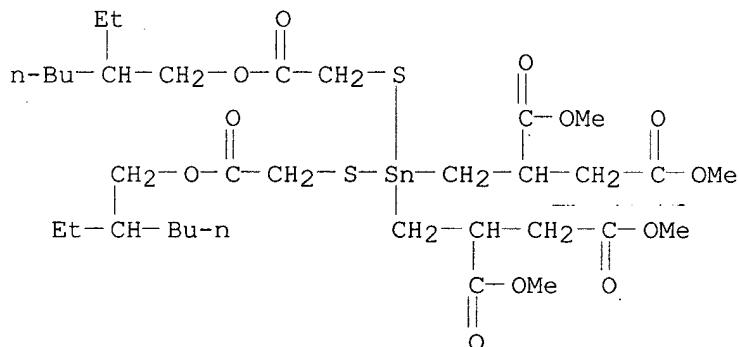


IT 70165-90-1P 70165-91-2P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(prepn. of)

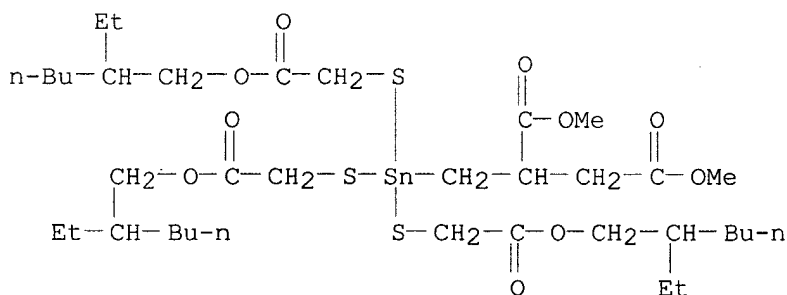
RN 70165-90-1 HCAPLUS

CN Butanedioic acid, 2,2'-[[bis[[2-[(2-ethylhexyl)oxy]-2-oxoethyl]thio]stannylene]bis(methylene)]bis-, tetramethyl ester (9CI) (CA INDEX NAME)



RN 70165-91-2 HCAPLUS

CN Butanedioic acid, [[tris[[2-[(2-ethylhexyl)oxy]-2-oxoethyl]thio]stannyl]methyl]-, dimethyl ester (9CI) (CA INDEX NAME)

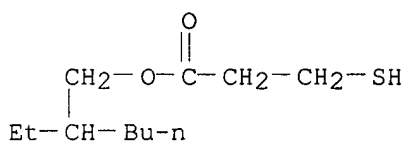


IT 50448-95-8

RL: RCT (Reactant)  
(reaction of, with chlorostannane)

RN 50448-95-8 HCAPLUS

CN Propanoic acid, 3-mercapto-, 2-ethylhexyl ester (9CI) (CA INDEX NAME)



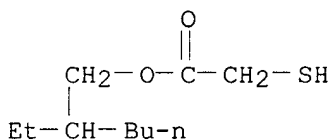
IT 7659-86-1

RL: RCT (Reactant)

(reaction of, with chlorostannanes)

RN 7659-86-1 HCAPLUS

CN Acetic acid, mercapto-, 2-ethylhexyl ester (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



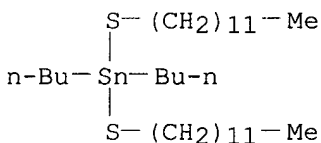
IT 1185-81-5 10584-98-2

RL: RCT (Reactant)

(stabilizing activity of, for poly(vinyl chloride))

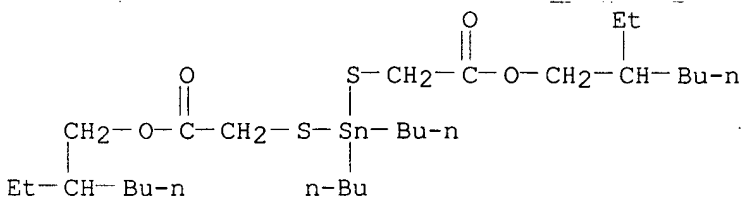
RN 1185-81-5 HCAPLUS

CN Stannane, dibutylbis(dodecylthio)- (8CI, 9CI) (CA INDEX NAME)



RN 10584-98-2 HCAPLUS

CN 8-Oxa-3,5-dithia-4-stannatetradecanoic acid, 4,4-dibutyl-10-ethyl-7-oxo-, 2-ethylhexyl ester (9CI) (CA INDEX NAME)



L55 ANSWER 5 OF 38 HCAPLUS COPYRIGHT 2002 ACS

AN 1979:204258 HCAPLUS

DN 90:204258

TI Phosphorus-containing organotin halides

IN Scheidl, Franz

PA Hoechst A.-G., Ger.

SO Ger. Offen., 18 pp.

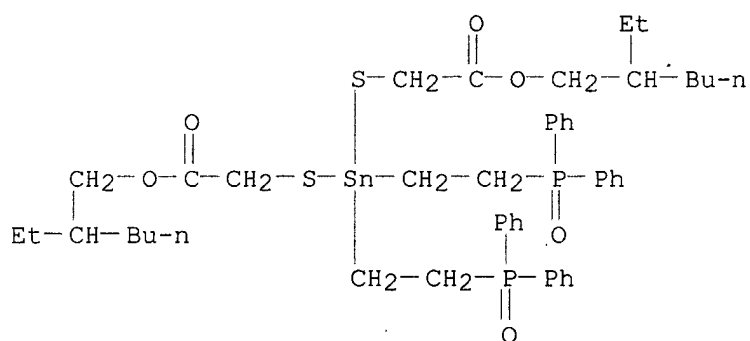
CODEN: GWXXBX

DT Patent  
LA German  
IC C07F009-40  
CC 29-8 (Organometallic and Organometalloidal Compounds)  
Section cross-reference(s): 35, 36

FAN.CNT 1

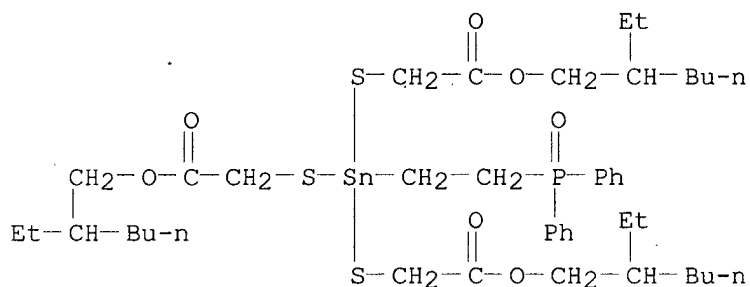
|    | PATENT NO.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | KIND        | DATE        | APPLICATION NO. | DATE        |
|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|-------------|-----------------|-------------|
| PI | DE 2736158                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | A1          | 19790222    | DE 1977-2736158 | 19770811    |
| AB | Title compds., [R1R2P(O)CHR3CR4R5]2SnX2 and R1R2P(O)CHR3CR4R5SnX3 [R1, R2 = OH, halo, amino, alkyl, aryl, alkoxy, aryloxy; R3-R5 = H, alkyl, aryl; X = Cl, Br, iodo] were prepd. by the reaction of R1R2P(O)CR3:CR4R5 with Sn and HCl. Thus, 0.5 mol H2C:CHP(O)(OBu)2, 0.25 mol Sn, and 1.5 mol HCl gave a mixt. of 80% [(BuO)2P(O)CH2CH2]2SnCl2 (I) and 20% (BuO)2P(O)CH2CH2SnCl3 (II). The reaction of 0.2 equiv. I and II with 0.2 mol HSCH2CO2CH2CH2Et(CH2)3Me gave 84.6 g [(BuO)2P(O)CH2CH2]2Sn[SCH2CO2CH2CH2Et(CH2)3Me]2 and (BuO)2P(O)CH2CH2Sn[SCH2CO2CH2CH2Et(CH2)3Me]3, useful as stabilizers for <b>polyvinyl</b> chloride. |             |             |                 |             |
| ST | stabilizer <b>polyvinyl</b> chloride; carboxyalkylthiostannylethanephosphonate polymer stabilizer; phosphonate carboxyalkylthiostannylethane; stannylethanephosphonate thioether carboxyalkyl; mercaptoacetate reaction chlorostannane; <b>vinylphosphonate</b> tin hydrogen chloride reaction                                                                                                                                                                                                                                                                                                                                        |             |             |                 |             |
| IT | Polymers, uses and miscellaneous<br>(stabilizers, carboxyalkylthiostannylalkanephosphonates and -phosphinate)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |             |             |                 |             |
| IT | 70241-31-5P                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 70241-32-6P | 70241-33-7P | 70241-34-8P     |             |
|    | RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)<br>(prepn. and reaction with thioglycolate)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |             |             |                 |             |
| IT | 70241-11-1P                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 70241-12-2P | 70241-48-4P |                 |             |
|    | 70241-49-5P                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 70241-50-8P | 70241-51-9P |                 |             |
|    | RL: SPN (Synthetic preparation); PREP (Preparation)<br>(prepn. and stabilizing activity for <b>polyvinyl</b> chlorides)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |             |             |                 |             |
| IT | 70241-35-9P                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 70241-36-0P | 70241-37-1P | 70241-38-2P     | 70241-39-3P |
|    | 70241-40-6P                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 70241-41-7P | 70241-42-8P | 70241-43-9P     | 70241-44-0P |
|    | 70241-45-1P                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 70241-46-2P | 70241-47-3P |                 |             |
|    | RL: SPN (Synthetic preparation); PREP (Preparation)<br>(prepn. of)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |             |             |                 |             |
| IT | 7659-86-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |             |             |                 |             |
|    | RL: RCT (Reactant)<br>(reaction of, with chlorostannylalkanephosphonates and -phosphinates)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |             |             |                 |             |
| IT | 682-76-8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 727-16-2    | 4124-95-2   | 4645-32-3       | 4708-07-0   |
|    | 53314-64-0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 63314-88-5  | 70241-52-0  |                 | 5238-94-8   |
|    | RL: RCT (Reactant)<br>(reaction of, with tin and hydrogen chloride)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |             |             |                 |             |
| IT | 9002-86-2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |             |             |                 |             |
|    | RL: RCT (Reactant)<br>(stabilizers for, carboxyalkylthiostannylalkanephosphonates as)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |             |             |                 |             |
| IT | 70241-11-1P                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 70241-12-2P | 70241-48-4P |                 |             |
|    | 70241-49-5P                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 70241-50-8P | 70241-51-9P |                 |             |
|    | RL: SPN (Synthetic preparation); PREP (Preparation)<br>(prepn. and stabilizing activity for <b>polyvinyl</b> chlorides)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |             |             |                 |             |
| RN | 70241-11-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | HCAPLUS     |             |                 |             |
| CN | 8-Oxa-3,5-dithia-4-stannatetradecanoic acid, 4,4-bis[2-(diphenylphosphinyl)ethyl]-10-ethyl-7-oxo-, 2-ethylhexyl ester (9CI) (CA INDEX NAME)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |             |             |                 |             |

*Not relevant*



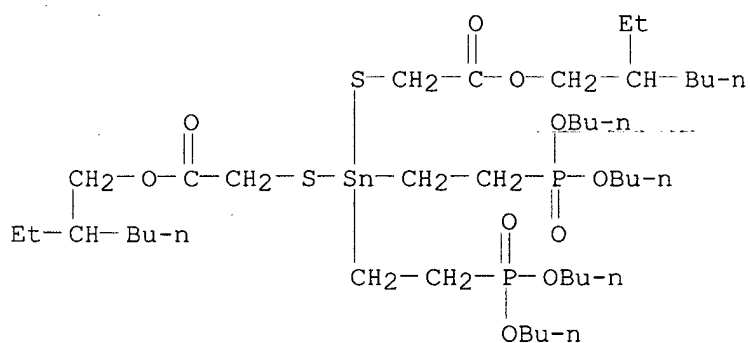
RN 70241-12-2 HCAPLUS

CN 8-Oxa-3,5-dithia-4-stannatetradecanoic acid, 4-[2-(diphenylphosphinyl)ethyl]-10-ethyl-4-[[2-[(2-ethylhexyl)oxy]-2-oxoethyl]thio]-7-oxo-, 2-ethylhexyl ester (9CI) (CA INDEX NAME)



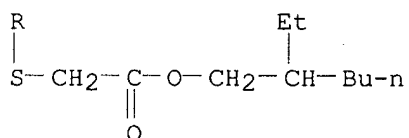
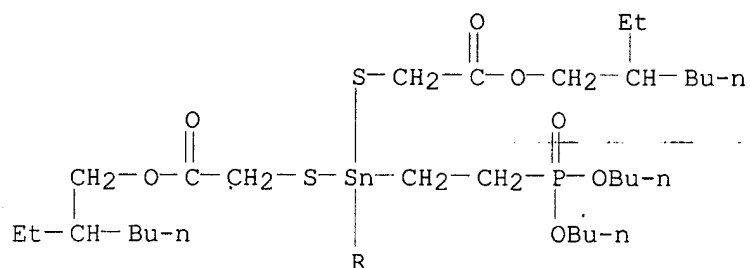
RN 70241-48-4 HCAPLUS

CN 8-Oxa-3,5-dithia-4-stannatetradecanoic acid, 4,4-bis[2-(dibutoxyphosphinyl)ethyl]-10-ethyl-7-oxo-, 2-ethylhexyl ester (9CI) (CA INDEX NAME)



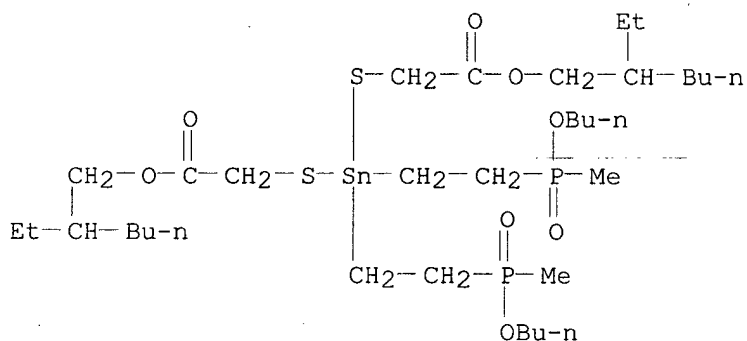
RN 70241-49-5 HCAPLUS

CN 8-Oxa-3,5-dithia-4-stannatetradecanoic acid, 4-[2-(dibutoxyphosphinyl)ethyl]-10-ethyl-4-[[2-[(2-ethylhexyl)oxy]-2-oxoethyl]thio]-7-oxo-, 2-ethylhexyl ester (9CI) (CA INDEX NAME)



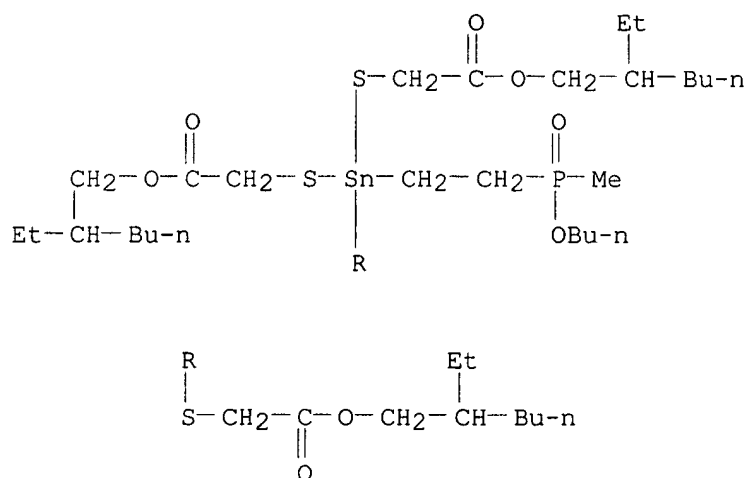
RN 70241-50-8 HCAPLUS

CN 8-Oxa-3,5-dithia-4-stannatetradecanoic acid, 4,4-bis[2-(butoxymethylphosphinyl)ethyl]-10-ethyl-7-oxo-, 2-ethylhexyl ester (9CI)  
(CA INDEX NAME)

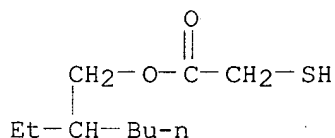


RN 70241-51-9 HCAPLUS

CN 8-Oxa-3,5-dithia-4-stannatetradecanoic acid, 4-[2-(butoxymethylphosphinyl)ethyl]-10-ethyl-4-[[2-[(2-ethylhexyl)oxy]-2-oxoethyl]thio]-7-oxo-, 2-ethylhexyl ester (9CI) (CA INDEX NAME)



IT 7659-86-1  
 RL: RCT (Reactant)  
 (reaction of, with chlorostannylalkanephosphonates and -phosphinates)  
 RN 7659-86-1 HCAPLUS  
 CN Acetic acid, mercapto-, 2-ethylhexyl ester (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



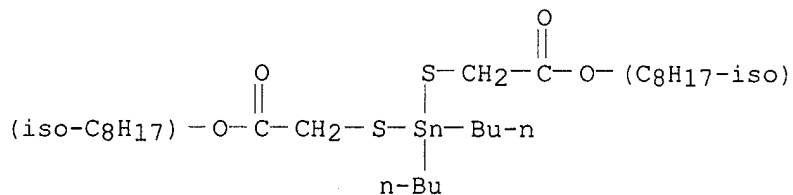
L55 ANSWER 6 OF 38 HCAPLUS COPYRIGHT 2002 ACS  
 AN 1979:72863 HCAPLUS  
 DN 90:72863  
 TI Heat stabilizer **composition** for halogenated resins  
 IN Bohen, Joseph Michael; Toukan, Sameeh Said  
 PA Pennwalt Corp., USA  
 SO U.S., 11 pp.  
 CODEN: USXXAM  
 DT **Patent**  
 LA English  
 IC C08K005-59  
 NCL 260045750B  
 CC 36-6 (Plastics Manufacture and Processing)  
 Section cross-reference(s): 23  
 FAN.CNT 1

|    | PATENT NO. | KIND | DATE     | APPLICATION NO. | DATE         |
|----|------------|------|----------|-----------------|--------------|
| PI | US 4115352 | A    | 19780919 | US 1977-799862  | 19770523 <-- |
|    | CA 1104805 | A1   | 19810714 | CA 1978-299621  | 19780323     |
|    | NL 7804393 | A    | 19781127 | NL 1978-4393    | 19780425     |
|    | NL 187271  | B    | 19910301 |                 |              |
|    | NL 187271  | C    | 19910801 |                 |              |
|    | BE 866428  | A1   | 19780814 | BE 1978-187152  | 19780426     |
|    | GB 1594046 | A    | 19810730 | GB 1978-16550   | 19780426     |

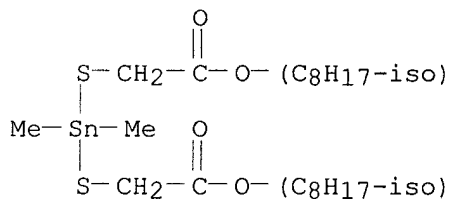
FR 2392074 A1 19781222 FR 1978-13690 19780509  
FR 2392074 B1 19830107  
BR 7803206 A 19790320 BR 1978-3206 19780519  
JP 53144944 A2 19781216 JP 1978-60080 19780522  
JP 62011019 B4 19870310  
ES 470078 A1 19791001 ES 1978-470078 19780522  
DE 2822508 A1 19781214 DE 1978-2822508 19780523  
DE 2822508 C2 19900802  
PRAI US 1977-799862 19770523  
AB Mixts. of an alkali or alk. earth metal salt (prepd. from the metal alkoxide) of a mercaptan or mercapto acid with a S-contg. organotin or mercury compd. (and optionally an overbased org. complex of an alk. earth metal carbonate) are synergistic heat stabilizers for PVC [9002-86-2]. Thus, 100 parts PVC contg. 1.5 parts dibutyltin bis(isooctyl thioglycolate) (I) [25168-24-5] and 1.5 parts barium bis(isooctyl thioglycolate) (II) [66368-81-8] [prepd. from Ba(OMe)<sub>2</sub> [2914-23-0]] plus the usual processing aids and additives had heat failure time (415.degree.) on a Brabender plastograph 37 min, compared to 20 or 4 min for PVC contg. only I or II, resp.  
ST PVC heat stabilization; mercaptocarboxylate salt heat stabilizer; tin thioglycolate heat stablizer; barium thiol salt  
IT Heat stabilizers  
(alkali or alk. earth metal mercaptides, contg. organotin or antimony compds., for PVC)  
IT 9002-86-2  
RL: USES (Uses)  
(heat stabilizers for, alkali or alk. earth mercaptides contg. organotin or antimony compds. as)  
IT 25168-24-5 26636-01-1 27288-44-4 54849-38-6  
59118-76-2 65291-38-5  
RL: MOA (Modifier or additive use); USES (Uses)  
(heat stabilizers, contg. alkali or alk. earth mercaptides, for PVC)  
IT 513-77-9D, overbased org. complexes  
RL: MOA (Modifier or additive use); USES (Uses)  
(heat stabilizers, contg. alkali or alk. earth metal mercaptides and antimony and organotin compds., for PVC)  
IT 59118-79-5  
RL: MOA (Modifier or additive use); USES (Uses)  
(heat stabilizers, contg. barium carbonate overbased org. complex and barium bis(mercaptoethyl oleate), for PVC)  
IT 16023-01-1 29820-13-1 56846-21-0 62828-68-6 68812-90-8  
68812-91-9 69128-09-2 69128-10-5  
RL: MOA (Modifier or additive use); USES (Uses)  
(heat stabilizers, contg. organotin or mercury compds., for PVC)  
IT 66368-81-8P 66368-85-2P 68893-63-0P 69128-07-0P 69128-08-1P  
RL: PREP (Preparation)  
(manuf. of, as heat stabilizers for PVC)  
IT 107-96-0 112-55-0 25103-09-7  
RL: RCT (Reactant)  
(reaction of, with alkali or alk. earth metal alkoxides)  
IT 124-41-4 2914-17-2 2914-23-0  
RL: RCT (Reactant)  
(reaction of, with thiols)  
IT 25168-24-5 26636-01-1 54849-38-6  
59118-76-2 65291-38-5  
RL: MOA (Modifier or additive use); USES (Uses)  
(heat stabilizers, contg. alkali or alk. earth mercaptides, for PVC)

*Salt not ester*

RN 25168-24-5 HCAPLUS

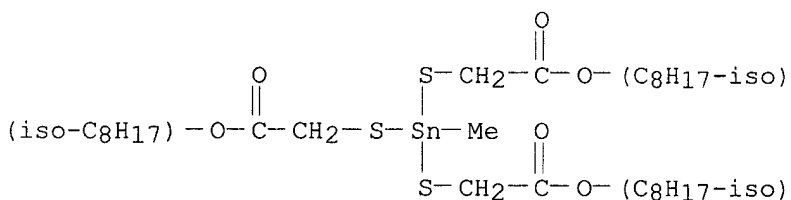
CN Acetic acid, 2,2'-[(dibutylstannylene)bis(thio)]bis-, diisooctyl ester  
(9CI) (CA INDEX NAME)

RN 26636-01-1 HCAPLUS

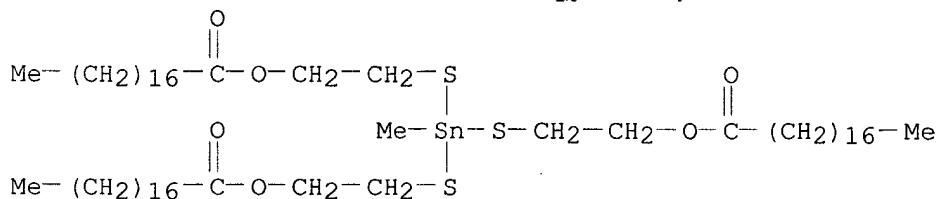
CN Acetic acid, 2,2'-[(dimethylstannylene)bis(thio)]bis-, diisooctyl ester  
(9CI) (CA INDEX NAME)

RN 54849-38-6 HCAPLUS

CN Acetic acid, 2,2',2''-[(methylstannylidyne)tris(thio)]tris-, triisooctyl ester (9CI) (CA INDEX NAME)



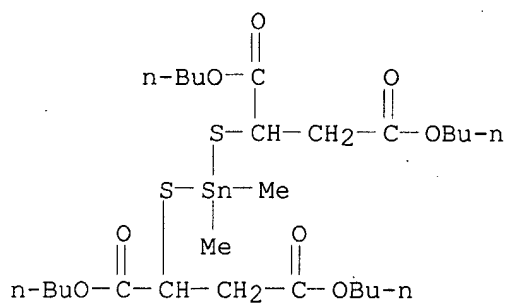
RN 59118-76-2 HCAPLUS

CN Octadecanoic acid, (methylstannylidyne)tris(thio-2,1-ethanediyl) ester  
(9CI) (CA INDEX NAME)

RN 65291-38-5 HCAPLUS

CN Butanedioic acid, 2,2'-[(dimethylstannylene)bis(thio)]bis-, tetrabutyl ester (9CI) (CA INDEX NAME)





IT 59118-79-5

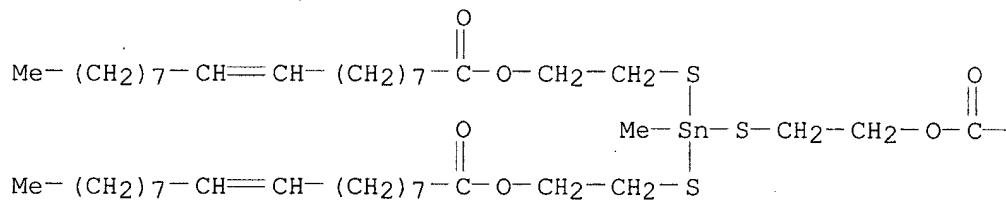
RL: MOA (Modifier or additive use); USES (Uses)

(heat stabilizers, contg. barium carbonate overbased org. complex and barium bis(mercaptoethyl oleate), for PVC)

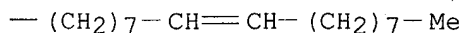
RN 59118-79-5 HCAPLUS

CN 9-Octadecenoic acid (9Z)-, (methylstannylidyne)tris(thio-2,1-ethanediyl) ester (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



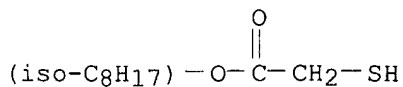
IT 25103-09-7

RL: RCT (Reactant)

(reaction of, with alkali or alk. earth metal alkoxides)

RN 25103-09-7 HCAPLUS

CN Acetic acid, mercapto-, isooctyl ester (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



L55 ANSWER 7 OF 38 HCAPLUS COPYRIGHT 2002 ACS

AN 1979:55816 HCAPLUS

KATHLEEN FULLER EIC 1700/LAW LIBRARY 308-4290

DN 90:55816  
 TI Compound of tin and superbasic complex for stabilizing halogenated resins  
 IN Bohen, J. M.  
 PA Pennwalt Corp., USA  
 SO Belg., 31 pp.  
 CODEN: BEXXAL  
 DT Patent  
 LA French  
 IC C08K  
 CC 36-6 (Plastics Manufacture and Processing)  
 FAN.CNT 3

|      | PATENT NO.     | KIND | DATE     | APPLICATION NO. | DATE         |
|------|----------------|------|----------|-----------------|--------------|
| PI   | BE 867981      | A1   | 19781002 | BE 1978-188456  | 19780609     |
|      | US 4177187     | A    | 19791204 | US 1977-828703  | 19770829 <-- |
| PRAI | US 1977-828703 |      | 19770829 |                 |              |

AB The stabilization of halogen-contg. polymers by tetrakis(alkylthio)stannanes is improved by addn. of the complexes  $RnM1.cntdot.xM2An$  (R = residue of a carboxylic, sulfonic, or phosphonic acid or phenol or thio deriv.; M1, M2 = alkali or alk. earth metal; A = OH-, CO3-2, O-2, SO4-2, HCO3-, S-2; n and m = 1 or 2; x > 0). Thus, stirring p-nonylphenol 60.8, Ba(OH)2.cntdot.H2O 138.7, isooctyl alc. 50, nitrated polyisobutylene 57, and light paraffin oil 133 g 5 h at 150.degree. with H2O distn., passing in 19 g/h CO2 for 3 h at 150.degree., and distg. the alc. in vacuo gives 341.3 g soln. (I) contg. 23.1% Ba and 8.45% CO3-2. Compounded PVC [9002-86-2] contg. 1.2 phr Sn(SCH2CO2C8H17-iso)4 [62568-17-6] (prepd. from HSCH2CO2C8H17-iso [25103-09-7] and SnCl4) and 0.3 phr I heated at 213.degree. becomes gray in 15 min, compared with 3 min in the absence of I, and 6 min with no stabilizer.

ST heat stabilization PVC; tin mercaptide heat stabilizer; thioglycolate tin deriv stabilizer; barium complex heat stabilizer; nonylphenol barium complex stabilizer

IT Heat stabilizers  
 (barium complex salts and tin mercaptides, for PVC)

IT 9002-86-2  
 RL: USES (Uses)  
 (heat stabilizers for, tin mercaptides and barium complex salts as)

IT 62568-17-6 69039-16-3 69039-17-4  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (heat stabilizers, contg. complex barium salts, for PVC)

IT 104-40-5D, barium salts, complexes with barium carbonate 513-77-9D, complexes with barium nonylphenoxide  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (heat stabilizers, contg. tin mercaptides, for PVC)

IT 7646-78-8, reactions  
 RL: RCT (Reactant)  
 (reaction of, with isooctyl mercaptoacetate)

IT 25103-09-7  
 RL: RCT (Reactant)  
 (reaction of, with stannic chloride)

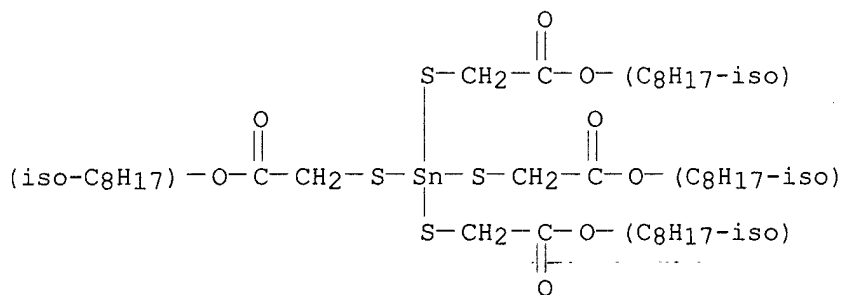
IT 109-79-5  
 RL: RCT (Reactant)  
 (reaction of, with stannic chloride and isooctyl mercaptoacetate)

IT 62568-17-6 69039-16-3 69039-17-4  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (heat stabilizers, contg. complex barium salts, for PVC)

RN 62568-17-6 HCAPLUS

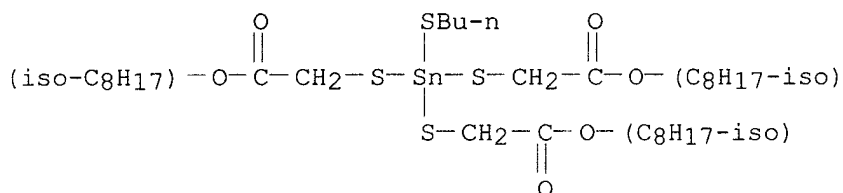
CN Acetic acid, 2,2',2'',2'''-[stannanetetrayltetrakis(thio)]tetrakis-, tetraisoctyl ester (9CI) (CA INDEX NAME)

*Not reverse*



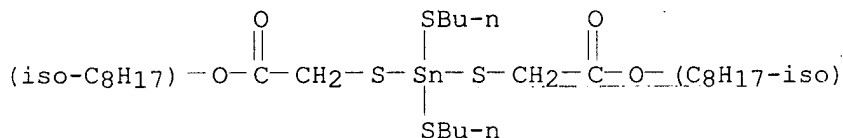
RN 69039-16-3 HCAPLUS

CN Acetic acid, 2,2',2''-[[ (butylthio)stannylidyne]tris(thio)]tris-, triisooctyl ester (9CI) (CA INDEX NAME)



RN 69039-17-4 HCAPLUS

CN Acetic acid, 2,2'-[[bis(butylthio)stannylidyne]bis(thio)]bis-, diisooctyl ester (9CI) (CA INDEX NAME)



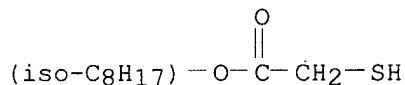
IT 25103-09-7

RL: RCT (Reactant)

(reaction of, with stannic chloride)

RN 25103-09-7 HCAPLUS

CN Acetic acid, mercapto-, isooctyl ester (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



L55 ANSWER 8 OF 38 HCAPLUS COPYRIGHT 2002 ACS

AN 1978:511378 HCAPLUS

DN 89:111378

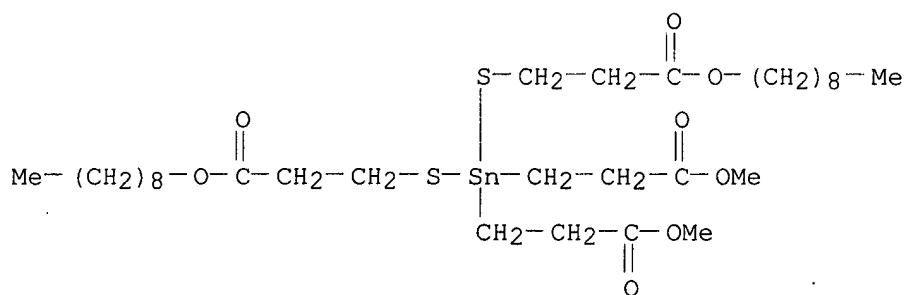
TI Low-odor stabilizers for halogen-containing resins

IN Kitano, Yoshikazu

KATHLEEN FULLER EIC 1700/LAW LIBRARY 308-4290

PA Nitto Kasei Co., Ltd., Japan  
SO Japan. Kokai, 3 pp.  
CODEN: JKXXAF  
DT Patent  
LA Japanese  
IC C08L027-02  
CC 36-6 (Plastics Manufacture and Processing)  
FAN.CNT 1

|    | PATENT NO.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | KIND | DATE     | APPLICATION NO. | DATE     |
|----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|----------|-----------------|----------|
| PI | JP 53035752                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | A2   | 19780403 | JP 1976-111938  | 19760914 |
| AB | Halogen-contg. resins were stabilized with low-odor<br>(MeO2CCH2CH2)2Sn(SCH2CH2CO2R)2 (I; R = C9-12 alkyl). For example, 59.4 g<br>Sn foil and 87.9 g Me acrylate [96-33-3] in 200 mL benzene were bubbled<br>with HCl to give 154.6 g (MeO2CCH2CH2)2SnCl2 [10175-01-6] which (109.1 g)<br>was treated with 139.5 g nonyl 3-mercaptopropionate [67231-93-0]<br>] in benzene in the presence of NH3 to give 99% I (R = nonyl) (II) [ <i>Not review</i><br>67231-94-1]. PVC [9002-86-2] was mixed with 2 phr II<br>at 170.degree. for 3 min and foamed to a 0.5 mm-thick odorless sheet free<br>from discoloration at 190.degree. for >30 min. |      |          |                 |          |
| ST | tin stabilizer odorless PVC; heat stabilizer tin PVC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |      |          |                 |          |
| IT | Heat stabilizers<br>(bis(carbomethoxyethyl)tin bis(nonyl mercaptopropionate), low-odor, for<br>PVC)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |      |          |                 |          |
| IT | 9002-86-2<br>RL: USES (Uses)<br>(heat stabilizers for, low-odor, bis(carbomethoxyethyl)tin bis(nonyl<br>mercaptopropionate) as)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |      |          |                 |          |
| IT | 67231-94-1P<br>RL: MOA (Modifier or additive use); PREP (Preparation); USES (Uses)<br>(heat stabilizers, low-order, for PVC, manuf. of)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |      |          |                 |          |
| IT | 10175-01-6P<br>RL: PREP (Preparation)<br>(manuf. and reaction with nonyl mercaptopropionate)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |      |          |                 |          |
| IT | 7440-31-5, reactions<br>RL: RCT (Reactant)<br>(reaction of, with Me acrylate)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |      |          |                 |          |
| IT | 67231-93-0<br>RL: RCT (Reactant)<br>(reaction of, with bis(carbomethoxyethyl)tin chloride)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |      |          |                 |          |
| IT | 96-33-3<br>RL: RCT (Reactant)<br>(reaction of, with tin)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |      |          |                 |          |
| IT | 67231-94-1P<br>RL: MOA (Modifier or additive use); PREP (Preparation); USES (Uses)<br>(heat stabilizers, low-order, for PVC, manuf. of)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |      |          |                 |          |
| RN | 67231-94-1 HCAPLUS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |      |          |                 |          |
| CN | 10-Oxa-4,6-dithia-5-stannanonadecanoic acid, 5,5-bis(3-methoxy-3-<br>oxopropyl)-9-oxo-, nonyl ester (9CI) (CA INDEX NAME)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |      |          |                 |          |



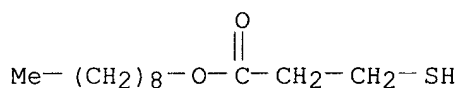
IT 67231-93-0

RL: RCT (Reactant)

(reaction of, with bis(carbomethoxyethyl)tin chloride)

RN 67231-93-0 HCAPLUS

|    |                                                |                 |
|----|------------------------------------------------|-----------------|
| CN | Propanoic acid, 3-mercapto-, nonyl ester (9CI) | (CA INDEX NAME) |
|----|------------------------------------------------|-----------------|



L55 ANSWER 9 OF 38 HCAPLUS COPYRIGHT 2002 ACS

AN 1978:509971 HCAPLUS

DN 89:109971

TI Organotin compounds

IN Dworkin, Robert Dally; Ejik, Adam Joseph

PA M and T Chemicals, Inc., USA

SO Ger. Offen., 19 pp.

CODEN: GWXXBX

DT Patent

LA German

IC C07F007-22

CC 29-8 (Organometallic and Organometalloidal Compounds)

Section cross-reference(s): 35, 36

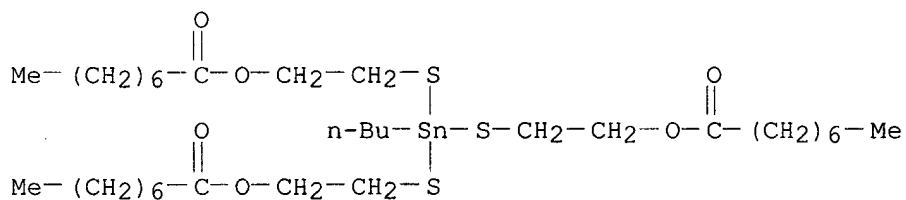
FAN.CNT 1

|      | PATENT NO.     | KIND | DATE     | APPLICATION NO. | DATE         |
|------|----------------|------|----------|-----------------|--------------|
|      | -----          | ---- | -----    | -----           | -----        |
| PI   | DE 2749082     | A1   | 19780511 | DE 1977-2749082 | 19771102     |
|      | DE 2749082     | C2   | 19870402 |                 |              |
|      | US 4104292     | A    | 19780801 | US 1976-738183  | 19761102 <-- |
|      | GB 1558898     | A    | 19800109 | GB 1977-42712   | 19771013     |
|      | BE 860052      | A1   | 19780215 | BE 1977-182010  | 19771024     |
|      | FR 2369287     | A1   | 19780526 | FR 1977-32045   | 19771025     |
|      | FR 2369287     | B1   | 19830401 |                 |              |
|      | NL 7711836     | A    | 19780505 | NL 1977-11836   | 19771027     |
|      | CA 1085414     | A1   | 19800909 | CA 1977-289804  | 19771028     |
|      | PL 109243      | B1   | 19800531 | PL 1977-201837  | 19771029     |
|      | BR 7707276     | A    | 19780725 | BR 1977-7276    | 19771031     |
|      | JP 53063317    | A2   | 19780606 | JP 1977-130380  | 19771101     |
|      | JP 59021870    | B4   | 19840522 |                 |              |
|      | CS 209884      | P    | 19811231 | CS 1977-7153    | 19771102     |
| PRAI | US 1976-738183 |      | 19761102 |                 |              |

AB The title compounds,  $\text{RqSn}[\text{S}(\text{CH}_2)\text{mO}_2\text{CR}]_4\text{-q}$  [ $\text{R}$ ,  $\text{R}_1 = \text{C1-20 alkyl, cycloalkyl, aryl, aralkyl, alkaryl}$ ;  $\text{m} = 2, 3$ ;  $\text{q} = 1\text{-}2$ ], useful as polymer stabilizers,

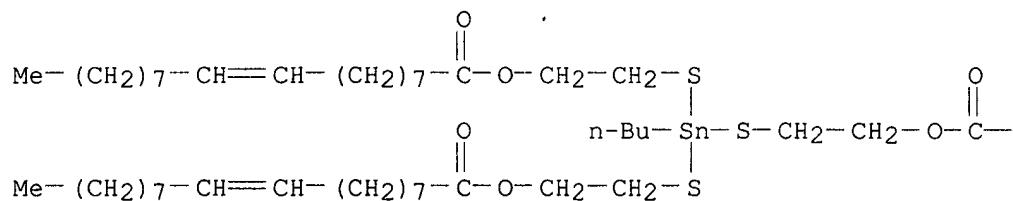
were prepd. Thus, 0.1 mol BuSnCl<sub>3</sub>, 0.3 mol HSCH<sub>2</sub>CH<sub>2</sub>OH, and 43.3 g caprylic acid gave 93% BuSn[SCH<sub>2</sub>CH<sub>2</sub>O<sub>2</sub>C(CH<sub>2</sub>)<sub>6</sub>Me]<sub>3</sub>. Similarly prepd. were (Z)-BuSn[SCH<sub>2</sub>CH<sub>2</sub>O<sub>2</sub>C(CH<sub>2</sub>)<sub>7</sub>CH:CH(CH<sub>2</sub>)<sub>7</sub>Me]<sub>3</sub> and S[SnBu(SCH<sub>2</sub>CH<sub>2</sub>O<sub>2</sub>C(CH<sub>2</sub>)<sub>6</sub>Me)<sub>2</sub>]<sub>2</sub>

- ST polymer stabilizer butylstannylthioethyl alkanoate; stannane alkanoyloxyethylthio; sulfide alkylstannyl
- IT Polymers, uses and miscellaneous  
RL: USES (Uses)  
(stabilizers for, alkyltin mercaptoethyl alkanoates as)
- IT 60-24-2  
RL: RCT (Reactant)  
(esterification of alkanolic acids by)
- IT 124-07-2, reactions  
RL: RCT (Reactant)  
(esterification of, with mercaptoethanols and treatment with butyltin trichlorides)
- IT 59118-80-8P 67361-76-6P 67395-86-2P  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(prepn. of)
- IT 59118-78-4  
RL: RCT (Reactant)  
(reaction with alkylhalostannanes)
- IT 1118-46-3  
RL: RCT (Reactant)  
(reaction with mercaptoalkyl alkanoates)
- IT 67361-77-7  
RL: RCT (Reactant)  
(stabilizer for polyvinylchloride)
- IT 9002-86-2  
RL: RCT (Reactant)  
(stabilizers for, dibutyltin bis(2-mercaptoethyl oleate) as)
- IT 112-62-9  
RL: RCT (Reactant)  
(tin esterification of, with mercaptomethanol and reaction with butyltin trichloride)
- IT 59118-80-8P 67361-76-6P 67395-86-2P  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(prepn. of)
- RN 59118-80-8 HCAPLUS
- CN Octanoic acid, (butylstannylidyne)tris(thio-2,1-ethanediyl) ester (9CI)  
(CA INDEX NAME)

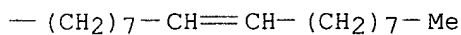


- RN 67361-76-6 HCAPLUS
- CN 9-Octadecenoic acid (9Z)-, (butylstannylidyne)tris(thio-2,1-ethanediyl) ester (9CI) (CA INDEX NAME)

PAGE 1-A

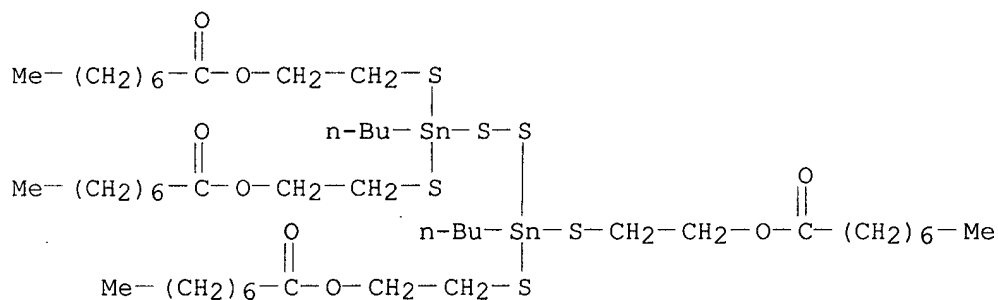


PAGE 1-B



RN 67395-86-2 HCAPLUS

Octanoic acid, 4,7-dibutyl-4,7-bis[[2-[(1-oxooctyl)oxy]ethyl]thio]-3,5,6,8-tetrathia-4,7-distannadecane-1,10-diyl ester (9CI) (CA INDEX NAME)



IT 59118-78-4

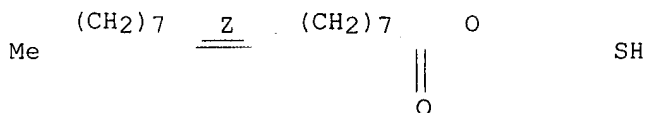
RL: RCT (Reactant)

(reaction with alkylhalostannanes)

RN 59118-78-4 HCAPLUS

CN 9-Octadecenoic acid (9Z)-, 2-mercaptoethyl ester (9CI) (CA INDEX NAME)

Double bond geometry as shown.



IT 67361-77-7

RL: RCT (Reactant)

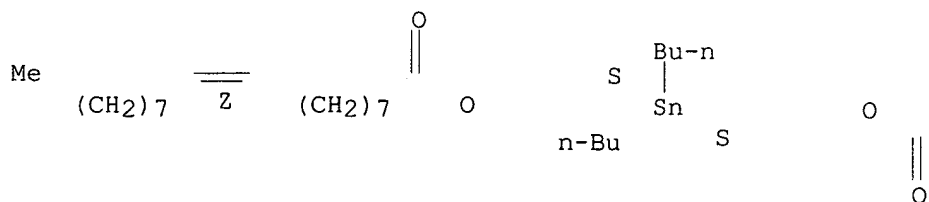
(stabilizer for polyvinylchloride)

RN 67361-77-7 HCAPLUS

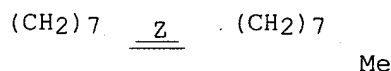
9-Octadecenoic acid (9Z)-, (dibutylstannylene)bis(thio-2,1-ethanediyl)  
ester (9CI) (CA INDEX NAME)

Double bond geometry as shown.

PAGE 1-A



PAGE 1-B



L55 ANSWER 10 OF 38 HCAPLUS COPYRIGHT 2002 ACS  
 AN 1978:490663 HCAPLUS  
 DN 89:90663  
 TI Liquid stabilizer systems and vinyl-halide resin  
 compositions containing them  
 IN Hoch, Samuel; Ceprini, Mario Q.; Szabo, Emery  
 PA Tenneco Chemicals, Inc., USA  
 SO U.S., 7 pp.  
 CODEN: USXXAM  
 DT Patent  
 LA English  
 IC C08K005-58  
 NCL 260045750S  
 CC 36-6 (Plastics Manufacture and Processing)  
 FAN.CNT 1

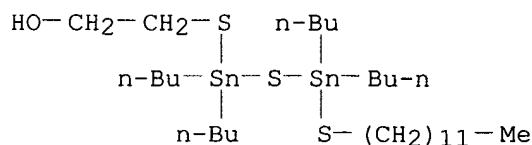
|      | PATENT NO.     | KIND | DATE     | APPLICATION NO. | DATE         |
|------|----------------|------|----------|-----------------|--------------|
| PI   | US 4059562     | A    | 19771122 | US 1977-779650  | 19770321 <-- |
|      | JP 54143455    | A2   | 19791108 | JP 1978-50263   | 19780428     |
| PRAI | US 1977-779650 |      | 19771122 |                 |              |

AB Organotin ethanolmercaptides contg. a higher alc. component and an alkyl acid phosphate are good heat stabilizers for PVC [9002-86-2].  
 Thus, laurylmercaptan [112-55-0] 130.6, 2-mercaptoethanol [60-24-2] 98.7, butylstannoic acid 131.8, and 2-methyl-2,4-pentanediol [107-41-5] 159.1 g were heated at 90-5.degree. at 110-20 mm until 22.7 g water was collected. A 4-methyl-2-pentanol [108-11-2]-P205 mixt. (2.5 g) was added to give a soln. of monobutyltin mono(dodecylmercaptide) di(ethanolmercaptide) (I) [65411-05-4]. A PVC formulation contg. 0.40 part I/100 parts resin developed a color (off-white) after 8 min at 178.degree., compared with 6 and 8 (slightly yellow to yellow) for formulations contg. com. stabilizers.  
 ST organotin ethanolmercaptide stabilizer PVC; heat stabilizer PVC  
 IT Heat stabilizers  
 (organotin ethanolmercaptides, for PVC)

*Not given*

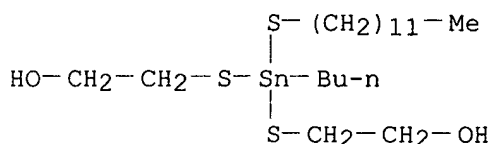


- IT Alcohols, uses and miscellaneous  
(C12-15-alkyl, organotin ethanolmercaptide heat stabilizers contg.)
- IT 9002-86-2  
RL: USES (Uses)  
(heat stabilizers for, organotin ethanolmercaptides as)
- IT 65411-04-3 65411-05-4 65411-06-5  
65411-07-6 65436-57-9 65436-58-0  
65459-04-3  
RL: MOA (Modifier or additive use); USES (Uses)  
(heat stabilizers, for PVC)
- IT 104-76-7 107-41-5 108-11-2D, mixed esters with phosphorus pentoxide  
1314-56-3D, reaction products with methylpentanol  
RL: USES (Uses)  
(organotin ethanolmercaptide heat stabilizers contg.)
- IT 25103-09-7  
RL: RCT (Reactant)  
(reaction of, with butylstannoic acid and mercaptoethanol)
- IT 1313-82-2, reactions  
RL: RCT (Reactant)  
(reaction of, with butyltin trichloride and mercaptoethanol)
- IT 60-24-2  
RL: RCT (Reactant)  
(reaction of, with butyltin trichloride and sodium sulfide)
- IT 112-55-0  
RL: RCT (Reactant)  
(reaction of, with dibutyltin dichloride and mercaptoethanol)
- IT 818-08-6  
RL: RCT (Reactant)  
(reaction of, with isooctyl thioglycolate and mercaptoethanol)
- IT 2273-43-0  
RL: RCT (Reactant)  
(reaction of, with isooctylthioglycolate and mercaptoethanol)
- IT 683-18-1  
RL: RCT (Reactant)  
(reaction of, with laurylmercaptan and mercaptoethanol)
- IT 1118-46-3  
RL: RCT (Reactant)  
(reaction of, with mercaptoethanol and sodium sulfide)
- IT 65411-04-3 65411-05-4 65411-06-5  
65411-07-6 65436-57-9 65436-58-0  
65459-04-3  
RL: MOA (Modifier or additive use); USES (Uses)  
(heat stabilizers, for PVC)
- RN 65411-04-3 HCAPLUS
- CN Ethanol, 2-[[1,1,3,3-tetrabutyl-3-(dodecylthio)distannathianyl]thio]-  
(9CI) (CA INDEX NAME)



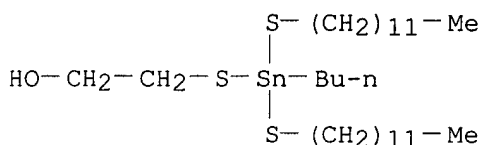
RN 65411-05-4 HCAPLUS

CN Ethanol, 2,2'-[[butyl(dodecylthio)stannylene]bis(thio)]bis- (9CI) (CA INDEX NAME)



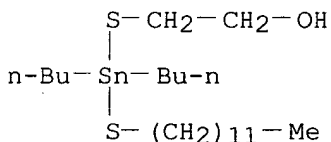
RN 65411-06-5 HCAPLUS

CN Ethanol, 2-[[butylbis(dodecylthio)stannyl]thio]- (9CI) (CA INDEX NAME)



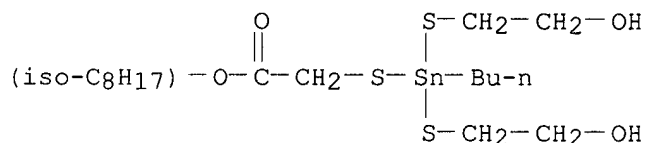
RN 65411-07-6 HCAPLUS

CN Ethanol, 2-[[dibutyl(dodecylthio)stannyl]thio]- (9CI) (CA INDEX NAME)



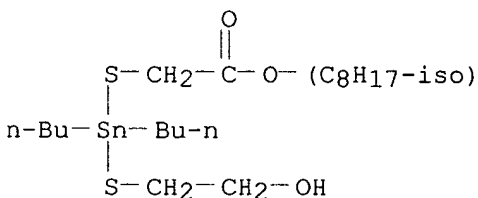
RN 65436-57-9 HCAPLUS

CN Acetic acid, [[butylbis[(2-hydroxyethyl)thio]stannyl]thio]-, isooctyl ester (9CI) (CA INDEX NAME)



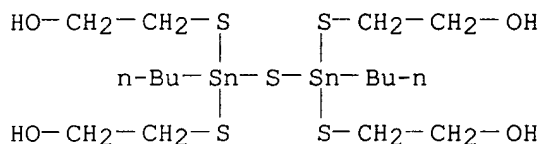
RN 65436-58-0 HCAPLUS

CN Acetic acid, [[dibutyl[(2-hydroxyethyl)thio]stannyl]thio]-, isooctyl ester (9CI) (CA INDEX NAME)



RN 65459-04-3 HCAPLUS

CN Ethanol, 2,2',2'',2'''-[(1,3-dibutyl-1,3-distannathianediylidene)tetrakis(thio)]tetrakis- (9CI) (CA INDEX NAME)



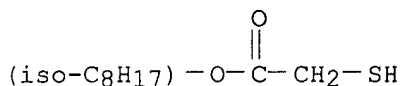
IT 25103-09-7

RL: RCT (Reactant)

(reaction of, with butylstannoic acid and mercaptoethanol)

RN 25103-09-7 HCAPLUS

CN Acetic acid, mercapto-, isooctyl ester (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



L55 ANSWER 11 OF 38 HCAPLUS COPYRIGHT 2002 ACS

AN 1978:121386 HCAPLUS

DN 88:121386

TI Organotin compounds

IN Hoch, Samuel; Szabo, Emery

PA Tenneco Chemicals, Inc., USA

SO Ger. Offen., 21 pp.

CODEN: GWXXBX

DT Patent

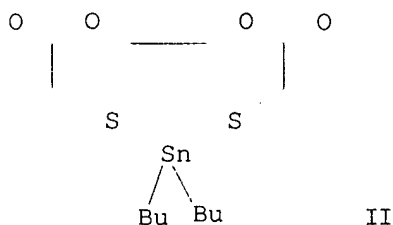
LA German

IC C07F007-22

CC 29-8 (Organometallic and Organometalloidal Compounds)  
Section cross-reference(s): 35, 36, 37

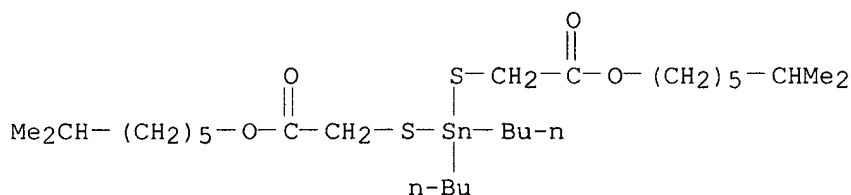
FAN.CNT 1

|      | PATENT NO.     | KIND | DATE     | APPLICATION NO. | DATE         |
|------|----------------|------|----------|-----------------|--------------|
| PI   | DE 2719526     | A1   | 19771215 | DE 1977-2719526 | 19770502     |
|      | US 4111903     | A    | 19780905 | US 1976-682430  | 19760503 <-- |
|      | GB 1574526     | A    | 19800910 | GB 1977-15933   | 19770418     |
|      | JP 52133930    | A2   | 19771109 | JP 1977-47973   | 19770427     |
|      | CA 1082726     | A1   | 19800729 | CA 1977-277597  | 19770502     |
| PRAI | US 1976-682430 |      | 19760503 |                 |              |
| GI   |                |      |          |                 |              |

*Not reverse*

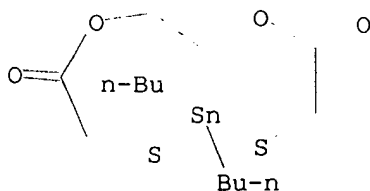
AB The title compds., [CH<sub>2</sub>O<sub>2</sub>CCH<sub>2</sub>SSnR<sub>2</sub>R<sub>1</sub>]<sub>2</sub> (I, R = C<sub>1</sub>-8 alkyl, R<sub>1</sub> = S(CH<sub>2</sub>)<sub>n</sub>CO<sub>2</sub>R<sub>2</sub>, SR<sub>2</sub>, O<sub>2</sub>CCH:CHCO<sub>2</sub>R<sub>3</sub>, R<sub>2</sub> = C<sub>8</sub>-18 alkyl, R<sub>3</sub> = C<sub>3</sub>-18 alkyl, n = 1, 2), were prepd. from R<sub>2</sub>SnO or R<sub>2</sub>SnCl<sub>2</sub>, [CH<sub>2</sub>O<sub>2</sub>CCH<sub>2</sub>SH]<sub>2</sub>, and R<sub>1</sub>H. Thus,

- 1.86 mol isooctyl thioglycolate, 0.892 mol  $[\text{CH}_2\text{O}_2\text{CCH}_2\text{SH}]_2$ , and 1.79 mol  $\text{Bu}_2\text{SnO}$  gave 977.2 g I ( $\text{R} = \text{Bu}$ ,  $\text{R}_1 = \text{SCH}_2\text{CO}_2(\text{C}_8\text{H}_{17}\text{-iso})$ ). Also prepd. were I [ $\text{R} = \text{Bu}$ ,  $\text{R}_1 = \text{dodecylthio}$ ,  $\text{O}_2\text{CCH}_2\text{CHCO}_2(\text{C}_8\text{H}_{17}\text{-iso})$ ],  $\text{Bu}_2\text{Sn}[\text{SCH}_2\text{CO}_2(\text{C}_8\text{H}_{17}\text{-iso})]_2$ , and II. I were stabilizers for **polyvinyl** chloride.
- ST. **polyvinyl** chloride stabilizer stannyl thioether; **vinyl** polymer stabilizer stannyl thioether; stannyl dibutyl thioether; thioether dibutylstannyl
- IT 6512-94-3P 13468-00-3P 65308-00-1P  
65924-20-1P 65924-21-2P  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(prepn. of)
- IT 112-55-0 25103-09-7  
RL: RCT (Reactant)  
(reaction with ethylene glycol dimercaptoacetate and dibutyltin oxide)
- IT 108-31-6, reactions  
RL: RCT (Reactant)  
(reaction with isooctyl alc.)
- IT 1653-40-3  
RL: RCT (Reactant)  
(reaction with maleic anhydride)
- IT 123-81-9  
RL: RCT (Reactant)  
(reaction with mercaptans and dibutyltin oxide)
- IT 683-18-1 818-08-6  
RL: RCT (Reactant)  
(reaction with mercaptans and ethylene glycol dimercaptoacetate)
- IT 9002-86-2  
RL: PROC (Process)  
(stabilization of, with butylstannyl thioethers)
- IT 6512-94-3P 13468-00-3P 65308-00-1P  
65924-20-1P 65924-21-2P  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(prepn. of)
- RN 6512-94-3 HCAPLUS
- CN 8-Oxa-3,5-dithia-4-stannapentadecanoic acid, 4,4-dibutyl-14-methyl-7-oxo-, 6-methylheptyl ester (9CI) (CA INDEX NAME)



RN 13468-00-3 HCAPLUS

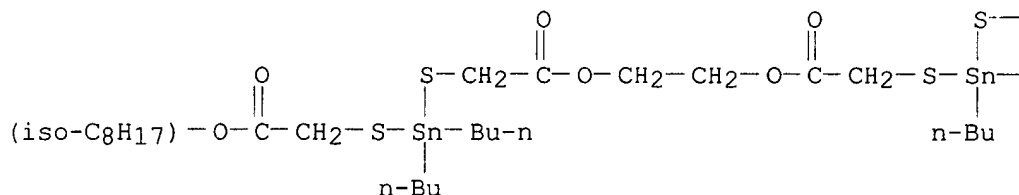
CN 1,4-Dioxa-7,9-dithia-8-stannacycloundecane-5,11-dione, 8,8-dibutyl- (9CI)  
(CA INDEX NAME)



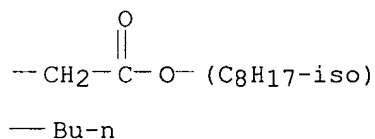
RN 65308-00-1 HCAPLUS

CN 8,11-Dioxa-3,5,14,16-tetrathia-4,15-distannaoctadecanedioic acid,  
4,4,15,15-tetrabutyl-7,12-dioxo-, diisooctyl ester (9CI) (CA INDEX NAME)

PAGE 1-A

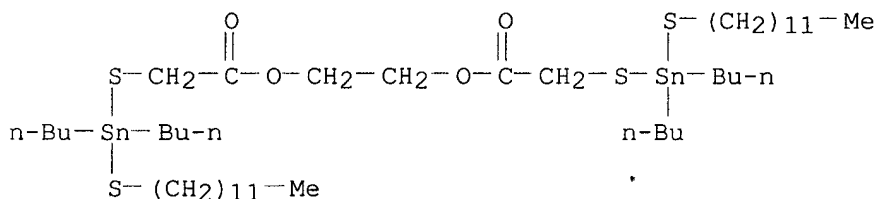


PAGE 1-B



RN 65924-20-1 HCAPLUS

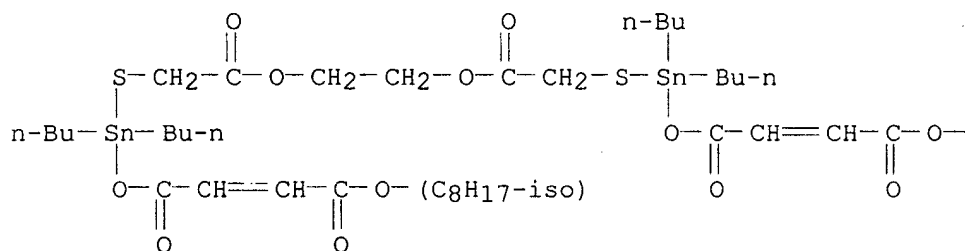
CN    Acetic acid, [[dibutyl(dodecylthio)stannyl]thio]-, 1,2-ethanediyl ester  
       (9CI)    (CA INDEX NAME)



RN 65924-21-2 HCAPLUS

CN 5,10,13,18-Tetraoxa-7,16-dithia-6,17-distannadocosa-2,20-dienedioic acid,  
6,6,17,17-tetrabutyl-4,9,14,19-tetraoxo-, diisooctyl ester, (Z,Z)- (9CI)  
(CA INDEX NAME)

PAGE 1-A



PAGE 1-B

— (C<sub>8</sub>H<sub>17</sub>-iso)

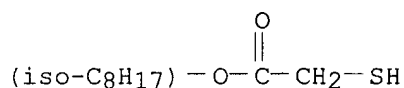
IT 25103-09-7

RL: RCT (Reactant)

(reaction with ethylene glycol dimercaptoacetate and dibutyltin oxide)

RN 25103-09-7 HCAPLUS

CN Acetic acid, mercapto-, isooctyl ester (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



L55 ANSWER 12 OF 38 HCAPLUS COPYRIGHT 2002 ACS

AN 1977:406982 HCAPLUS

DN 87:6982

TI Organotin dihalides useful as stabilizers

PA AKZO N. V., Belg.

SO Belg., 20 pp.

CODEN: BEXXAL

DT Patent

LA French

IC C07F

CC 36-6 (Plastics Manufacture and Processing)

FAN.CNT 1

|    | PATENT NO. | KIND | DATE     | APPLICATION NO. | DATE     |
|----|------------|------|----------|-----------------|----------|
| PI | BE 843387  | A1   | 19761018 | BE 1976-168289  | 19760625 |

AB Powd. Sn was treated with an olefin and a hydrogen halide under mild conditions of temp. and pressure in the absence of a catalyst to give high yields of X<sub>2</sub>Sn (CRR1CH<sub>2</sub>COR<sub>2</sub>)<sub>2</sub> (I) and X<sub>3</sub>SnCRR1CH<sub>2</sub>COR<sub>2</sub> (II) (X = Cl, Br; R = H, Me; R<sub>1</sub> = H, Me; R<sub>2</sub> = OMe, OEt, Me, Cl, Bu) which were further reacted with thioglycolates, thiols, and acids to give products which stabilized PVC [9002-86-2] at 185.degree. for longer periods and at lower concns. than similar dibutyltin compds. Thus, 60 g powd Sn and 67.4 g Me acrylate [96-33-3] were mixed in 140 mL Et<sub>2</sub>O and 87 g HCl was added in 3 h at 20.degree.. The Et<sub>2</sub>O was removed and 300 mL CHCl<sub>3</sub> was added to give 177.2 g of mixt. of 37% I and 27% II (X = Cl; R = R<sub>1</sub> = H; R<sub>2</sub> = OMe). The I product obtained (54.6 g) was treated with 64.2 g isooctyl thioglycolate [25103-09-7] in the presence of NaHCO<sub>3</sub> 2 h at 50-60.degree. to give a product which acted as a heat stabilizer for PVC and, at 1% concn., gave better results than dibutyltin dithioglycolate in 70 h at 185.degree..

ST PVC organotin heat stabilizer; tin compd PVC stabilizer

IT Heat stabilizers

(organotin compds., for PVC)

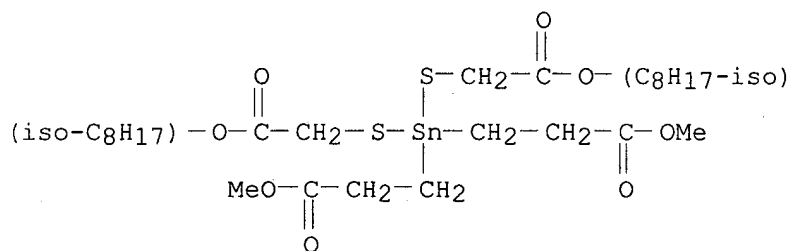
IT 9002-86-2

RL: USES (Uses)

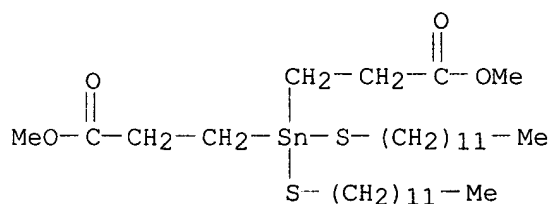
(heat stabilizers for, organotin compds. as)

KATHLEEN FULLER EIC 1700/LAW LIBRARY 308-4290

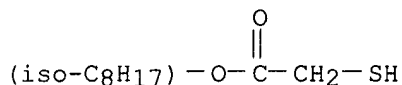
- IT 61460-21-7 61470-35-7 61470-36-8 61470-37-9  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (heat stabilizers, for PVC)
- IT 10175-01-6P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)  
 (prepn. and reaction of, with thioglycolates, thiols and acids)
- IT 10175-02-7P 10175-07-2P 10177-71-6P 18996-10-6P 59586-03-7P  
 59586-06-0P 59586-10-6P 59586-13-9P 61470-32-4P 61470-33-5P  
 61470-34-6P  
 RL: PREP (Preparation)  
 (prepn. of)
- IT 18990-10-8P 59586-09-3P  
 RL: PREP (Preparation)  
 (prepn. of,)
- IT 7440-31-5, reactions  
 RL: RCT (Reactant)  
 (reaction of, with olefins and hydrogen halides)
- IT 7647-01-0, reactions 10035-10-6, reactions  
 RL: RCT (Reactant)  
 (reaction of, with olefins and tin)
- IT 112-55-0 143-07-7, reactions 925-21-3 25103-09-7  
 RL: RCT (Reactant)  
 (reaction of, with organotin halides)
- IT 78-94-4, reactions 80-62-6 96-33-3 140-88-5 141-32-2 141-79-7  
 814-68-6  
 RL: RCT (Reactant)  
 (reaction of, with tin and hydrogen halides)
- IT 61460-21-7 61470-36-8  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (heat stabilizers, for PVC)
- RN 61460-21-7 HCAPLUS
- CN Propanoic acid, 3,3'-[bis[[2-(isooctyloxy)-2-oxoethyl]thio]stannylene]bis-, dimethyl ester (9CI) (CA INDEX NAME)



- RN 61470-36-8 HCAPLUS
- CN Propanoic acid, 3,3'-[bis(dodecylthio)stannylene]bis-, dimethyl ester (9CI) (CA INDEX NAME)



IT 25103-09-7  
RL: RCT (Reactant)  
(reaction of, with organotin halides)  
RN 25103-09-7 HCAPLUS  
CN Acetic acid, mercapto-, isooctyl ester (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



L55 ANSWER 13 OF 38 HCAPLUS COPYRIGHT 2002 ACS

AN 1977:56264 HCAPLUS

DN 86:56264

TI Heat stabilizers for vinyl chloride resins

IN Mototani, Hideo

PA Nitto Kasei Co., Ltd., Japan

SO Japan. Kokai, 7 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC C08L027-00

CC 36-6 (Plastics Manufacture and Processing)

Section cross-reference(s): 29

FAN.CNT 1

|    | PATENT NO.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | KIND       | DATE       | APPLICATION NO. | DATE     |
|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|------------|-----------------|----------|
| PI | JP 51117740                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | A2         | 19761016   | JP 1975-43990   | 19750410 |
| AB | A dialkyltin oxide is treated with a mercapto acid alkyl ester in 1:1 equiv. ratio to give a dialkyltin bis(alkyl mercaptocarboxylate). A little amt. of Zn compd. is added before or after the reaction of the oxide with the ester to give a stabilizer <b>compn.</b> for a vinyl chloride resin. Thus, a mixt. of 357.8 g dioctyltin oxide [870-08-6] and 381.3 g isooctyl mercaptoacetate [25103-09-7] was heated 2 h at 80-90.degree. to give dioctyltin bis(isooctyl mercaptoacetate) [26401-97-8] which was mixed with 10% ZnCl <sub>2</sub> , giving a stabilizer <b>compn.</b> A mixt. of 100 parts PVC [9002-86-2] and 2 parts stabilizer <b>compn.</b> was kneaded 3 min at 180.degree. to give a 0.3-mm sheet with improved heat resistance compared with a control when ZnCl <sub>2</sub> was omitted under the same conditions. |            |            |                 |          |
| ST | heat stabilizer chlorinated resin; vinyl chloride resin <b>compn.</b> ; organotin compd heat stabilizer; zinc compd heat stabilizer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |            |            |                 |          |
| IT | Heat stabilizers<br>(dialkyltin bis(alkyltin bis(alkyl mercaptocarboxylate))-zinc compds., for vinyl chloride resins)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |            |            |                 |          |
| IT | 25085-46-5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |            |            |                 |          |
|    | RL: USES (Uses)<br>(graft, heat-resistant <b>compns.</b> , contg. organotin compds. and zinc compds.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |            |            |                 |          |
| IT | 7646-85-7, uses and miscellaneous                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |            | 7779-88-6  | 13847-22-8      |          |
|    | 25168-24-5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 26401-97-8 | 26636-01-1 |                 |          |
|    | 27107-88-6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 32251-22-2 | 50788-67-5 |                 |          |
|    | 61624-94-0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |            |            |                 |          |
|    | RL: USES (Uses)<br>(heat stabilizers contg., for vinyl chloride resins)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |            |            |                 |          |
| IT | 9002-86-2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |            |            |                 |          |
|    | RL: USES (Uses)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |            |                 |          |

Not reverse



(heat-resistant **compns.**, contg. organotin compds. and zinc compds.)

IT 25103-09-7

RL: RCT (Reactant)

(reaction of, with dioctyltin oxide)

IT 870-08-6

RL: RCT (Reactant)

(reaction of, with isooctyl mercaptoacetate)

IT 25168-24-5 26401-97-8 26636-01-1

27107-88-6 32251-22-2 50788-67-5

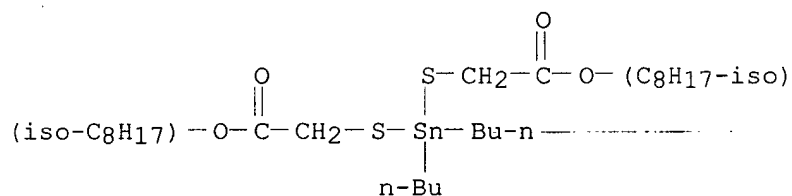
61624-94-0

RL: USES (Uses)

(heat stabilizers contg., for vinyl chloride resins)

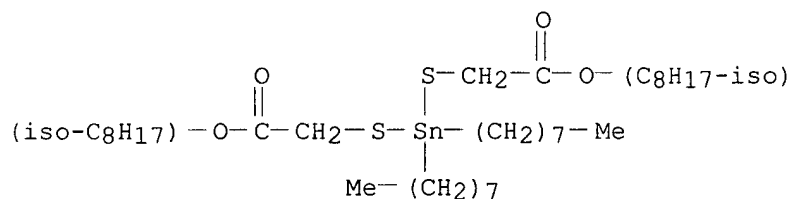
RN 25168-24-5 HCAPLUS

CN Acetic acid, 2,2'-[(dibutylstannylene)bis(thio)]bis-, diisooctyl ester  
(9CI) (CA INDEX NAME)



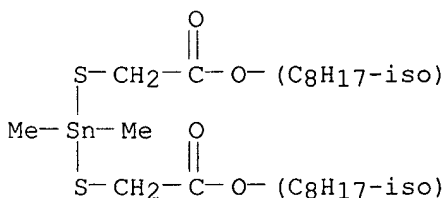
RN 26401-97-8 HCAPLUS

CN Acetic acid, 2,2'-[(dioctylstannylene)bis(thio)]bis-, diisooctyl ester  
(9CI) (CA INDEX NAME)



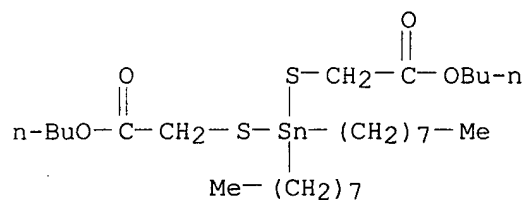
RN 26636-01-1 HCAPLUS

Acetic acid, 2,2'-[(dimethylstannylene)bis(thio)]bis-, diisooctyl ester  
(9CI) (CA INDEX NAME)



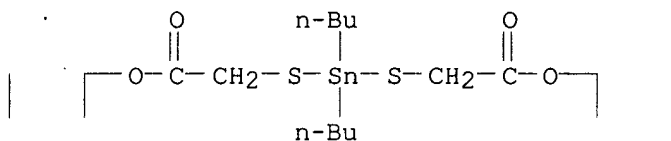
RN 27107-88-6 HCAPLUS

8-Oxa-3,5-dithia-4-stannadodecanoic acid, 4,4-dioctyl-7-oxo-, butyl ester  
(9CI) (CA INDEX NAME)



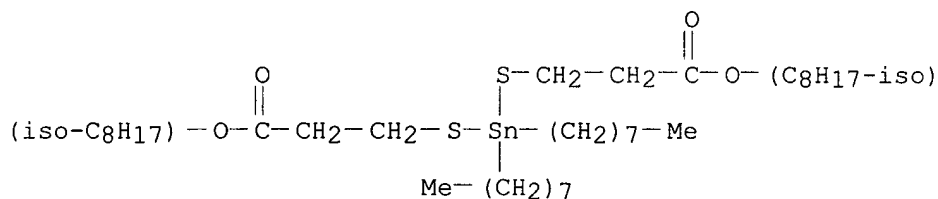
RN 32251-22-2 HCAPLUS

CN Acetic acid, 2,2'-[(dibutylstannylene)bis(thio)]bis-, dicyclohexyl ester  
(9CI) (CA INDEX NAME)



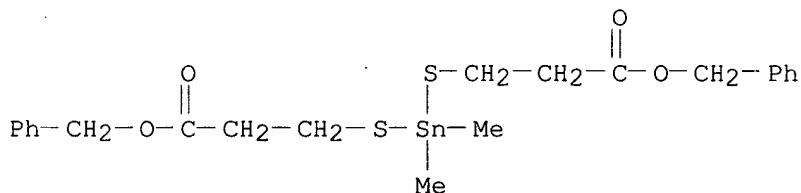
RN 50788-67-5 HCAPLUS

CN Propanoic acid, 3,3'-[(diocetylstannylene)bis(thio)]bis-, diisooctyl ester  
(9CI) (CA INDEX NAME)



RN 61624-94-0 HCAPLUS

CN 2-Oxa-6,8-dithia-7-stannaundecan-11-oic acid, 7,7-dimethyl-3-oxo-1-phenyl-  
, phenylmethyl ester (9CI) (CA INDEX NAME)



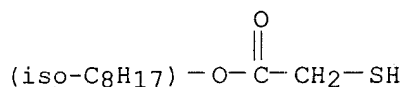
IT 25103-09-7

RL: RCT (Reactant)

(reaction of, with dioctyltin oxide)

RN 25103-09-7 HCAPLUS

CN    Acetic acid, mercapto-, isooctyl ester (6CI, 7CI, 8CI, 9CI)    (CA INDEX  
NAME)



L55 ANSWER 14 OF 38 HCAPLUS COPYRIGHT 2002 ACS

AN 1977:30526 HCAPLUS

DN 86:30526

TI Organotin compounds as nonpoisonous heat stabilizers for poly(**vinyl** chloride)

IN Ohnishi, Fusamatsu; Motobashi, Akira

PA Sankyo Organic Chemicals Co., Ltd., Japan

SO Japan. Kokai, 5 pp.

CODEN: JKXXAF

DT **Patent**

LA Japanese

IC C08L027-06

CC 36-6 (Plastics Manufacture and Processing)

FAN.CNT 1

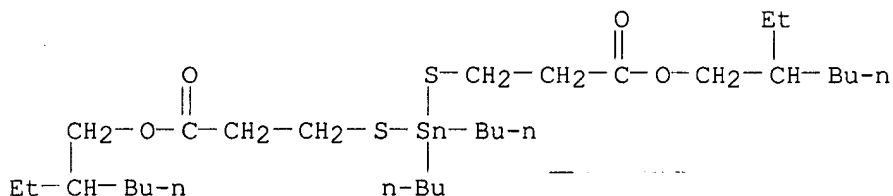
|    | PATENT NO.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | KIND | DATE     | APPLICATION NO. | DATE     |
|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|----------|-----------------|----------|
| PI | JP 51093947                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | A2   | 19760818 | JP 1975-19491   | 19750218 |
| AB | A <b>vinyl</b> chloride resin compn. is prepd., contg. organotin compds. as nonpoisonous stabilizer. Thus, a mixt. of BuSnCl <sub>3</sub> [1118-46-3] 98.85, Bu <sub>2</sub> SnCl <sub>2</sub> [683-18-1] 1.03, and Bu <sub>3</sub> SnCl [1461-22-9] 0.12% was treated with NaOH to give a white product which (50.00 g) was treated with 123.21 g 2-ethylhexyl 3-mercaptopropionate [50448-95-8] giving 155.80 g oily substance (LD50 value for male rat .gtoreq.20 g/kg) contg. monobutyltin tris(2-ethylhexyl 3-mercaptopropionate) [61241-05-2] 99.13, dibutyltin bis(2-ethylhexyl 3-mercaptopropionate) [53202-61-2] 0.80, and tributyltin mono(2-ethylhexyl 3-mercaptopropionate) [61241-06-3] 0.07%. A mixt. of PVC [9002-86-2] 100, oily substance (as heat stabilizer) 2, and Ca stearate 0.5 part was kneaded to give a 0.6-mm sheet with improved heat resistance compared with a control when dioctyltin bis(isooctyl mercaptoacetate) was used as heat stabilizer under the same conditions. |      |          |                 |          |
| ST | nonpoisonous heat stabilizer <b>PVC</b> ; organotin compd heat stabilizer; tin organo heat stabilizer; mercaptopropionatotin butyl heat stabilizer; butylmercaptopropionatotin heat stabilizer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |      |          |                 |          |
| IT | Heat stabilizers<br>(organotin compds., for <b>PVC</b> )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |      |          |                 |          |
| IT | 53202-61-2 61241-05-2 61241-06-3<br>RL: MOA (Modifier or additive use); USES (Uses)<br>(heat stabilizers contg., for <b>PVC</b> )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |      |          |                 |          |
| IT | 9002-86-2<br>RL: USES (Uses)<br>(heat stabilizers for, butyltin ethylhexyl mercaptopropionates as)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |      |          |                 |          |
| IT | 50448-95-8<br>RL: RCT (Reactant)<br>(reaction of, with butyltin oxide hydroxide)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |      |          |                 |          |
| IT | 683-18-1 1118-46-3 1461-22-9<br>RL: RCT (Reactant)<br>(reaction of, with sodium hydroxide)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |      |          |                 |          |
| IT | 1310-73-2, reactions<br>RL: RCT (Reactant)<br>(with butyltin chlorides)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |      |          |                 |          |
| IT | 53202-61-2 61241-05-2 61241-06-3<br>RL: MOA (Modifier or additive use); USES (Uses)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |      |          |                 |          |

Not review

(heat stabilizers contg., for PVC)

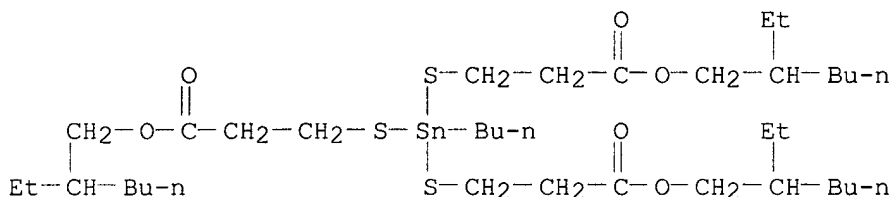
RN 53202-61-2 HCAPLUS

CN 10-Oxa-4,6-dithia-5-stannahexadecanoic acid, 5,5-dibutyl-12-ethyl-9-oxo-, 2-ethylhexyl ester (9CI) (CA INDEX NAME)



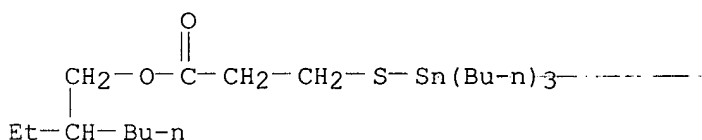
RN 61241-05-2 HCAPLUS

CN 10-Oxa-4,6-dithia-5-stannahexadecanoic acid, 5-butyl-12-ethyl-5-[[3-[(2-ethylhexyl)oxy]-3-oxopropyl]thio]-9-oxo-, 2-ethylhexyl ester (9CI) (CA INDEX NAME)



RN 61241-06-3 HCAPLUS

CN Propanoic acid, 3-[(tributylstannyl)thio]-, 2-ethylhexyl ester (9CI) (CA INDEX NAME)



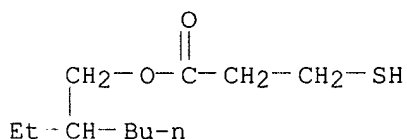
IT 50448-95-8

RL: RCT (Reactant)

(reaction of, with butyltin oxide hydroxide)

RN 50448-95-8 HCAPLUS

CN Propanoic acid, 3-mercapto-, 2-ethylhexyl ester (9CI) (CA INDEX NAME)



L55 ANSWER 15 OF 38 HCAPLUS COPYRIGHT 2002 ACS

AN 1976:593578 HCAPLUS

DN 85:193578

KATHLEEN FULLER EIC 1700/LAW LIBRARY 308-4290

TI Organotin compounds  
 IN Collins, John Desmond; Coates, Harold; Siddiqui, Iftikhar H.  
 PA Albright and Wilson Ltd., UK  
 SO Brit., 18 pp.  
 CODEN: BRXXAA  
 DT Patent  
 LA English  
 IC C07F007-22  
 CC 36-6 (Plastics Manufacture and Processing)  
 Section cross-reference(s): 29

FAN.CNT 2

|      | PATENT NO.     | KIND | DATE     | APPLICATION NO. | DATE         |
|------|----------------|------|----------|-----------------|--------------|
| PI   | GB 1439751     | A    | 19760616 | GB 1972-21826   | 19730510     |
|      | CA 1020569     | A1   | 19771108 | CA 1973-170798  | 19730509     |
|      | US 3962295     | A    | 19760608 | US 1974-533535  | 19741217 <-- |
| PRAI | GB 1972-21826  |      | 19720510 |                 |              |
|      | US 1973-359176 |      | 19730510 |                 |              |

AB Improved stabilization of **PVC** [9002-86-2] against thermal degrdn. was obtained using the low-Sn content 1,6-bis[(dialkylstannyl)thio]hexane deriv. stabilizers. E.g., Corvic D55-9 was blended with 1.6 parts stabilizer/100 parts resin, the stabilizer comprising Bu epoxystearate 15, BuSn(SCH<sub>2</sub>CO<sub>2</sub>C<sub>8</sub>H<sub>17</sub>)<sub>3</sub> 5, Plastilube 30 0.5%, and 95% Bu<sub>2</sub>SnRS(CH<sub>2</sub>)<sub>6</sub>SSnRBU<sub>2</sub> [R = O<sub>2</sub>C(CH<sub>2</sub>)<sub>2</sub>SCH[(CH<sub>2</sub>)<sub>10</sub>Me]SCH<sub>2</sub>CO<sub>2</sub>(CH<sub>2</sub>)<sub>5</sub>CHMe<sub>2</sub>] [58828-55-0], prepd. in 2 stages from dodecylaldehyde [112-54-9], HS(CH<sub>2</sub>)<sub>2</sub>CO<sub>2</sub>H [107-96-0], and iso-octyl thioglycollate [25103-09-7] using Bu<sub>2</sub>SnO [818-08-6] and HS(CH<sub>2</sub>)<sub>6</sub>SH [1191-43-1]. The rigid **compn.** had Gardner Scale color 2-3 after 15 min at 190.degree. compared with a color 5 for a conventional **PVC compn.** (Mellite 31C) contg. an equiv. amt. of stabilizer. An equiv. amt. of stabilizer. Six other stabilizers were prepd. **PVC** heat stabilizer organothiotin; sulfur tin stabilizer **PVC**; stannylthiohexane stabilizer **PVC**

IT Heat stabilizers

(bis[(dialkylstannyl)thio]hexane derivs., for **PVC**)

IT Discoloration prevention

(of **PVC**, by bis[(dialkylstannyl)thio]hexane derivs.)

IT 107-96-0

RL: RCT (Reactant)

(condensation reaction of, with aldehydes and alkyl thioglycolates)

IT 818-08-6 870-08-6

RL: RCT (Reactant)

(condensation reaction of, with alkylmercaptopropionic acids)

IT 1191-43-1

RL: RCT (Reactant)

(condensation reaction of, with dialkyltin esters)

IT 25103-09-7

RL: RCT (Reactant)

(condensation reaction of, with dodecylaldehyde and mercaptopropionic acid)

IT 112-54-9

RL: RCT (Reactant)

(condensation reaction of, with isooctyl thioglycollate and mercaptopropionic acid)

IT 90-02-8, reactions

RL: RCT (Reactant)

(condensation reaction of, with mercaptopropionic acid and ethylhexyl thioglycollate)

IT 7659-86-1

RL: RCT (Reactant)

*Not reverse*

(condensation reaction of, with mercaptopropionic acid and salicylaldehyde)

IT 77-85-0  
RL: RCT (Reactant)  
(esterification by, of isooctyl maleate and mercaptopropionic acid)

IT 26952-21-6  
RL: RCT (Reactant)  
(esterification by, of maleic anhydride)

IT 30137-97-4  
RL: RCT (Reactant)  
(esterification of, by dibutyltin oxide)

IT 108-31-6, reactions  
RL: RCT (Reactant)  
(esterification of, by isooctyl alc.)

IT 115-77-5, reactions  
RL: RCT (Reactant)  
(esterification of, with lauric and mercaptopropionic acids)

IT 143-07-7, reactions  
RL: RCT (Reactant)  
(esterification of, with pentaerythritol)

IT 50828-62-1P 60999-12-4P 60999-13-5P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)  
(prepn. and reaction with dibutyltin oxide)

IT 60998-26-7P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)  
(prepn. and reaction with dioctyltin oxide)

IT 58824-62-7P 58824-64-9P 58832-17-0P  
RL: PREP (Preparation)  
(prepn. of)

IT 112-55-0  
RL: RCT (Reactant)  
(reaction of, with dibutyltin oxide and alkylmercaptopropionic acid)

IT 50828-68-7  
RL: RCT (Reactant)  
(reaction of, with monooctyl butenedioic acid and dibutyltin oxide)

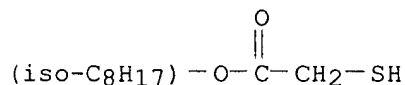
IT 9002-86-2  
RL: USES (Uses)  
(stabilizers for, bis[(dialkylstannyl)thio]hexane derivs. as)

IT 58824-65-0 58828-55-0 60999-11-3  
RL: MOA (Modifier or additive-use); USES (Uses)  
(stabilizers, for PVC)

IT 25103-09-7  
RL: RCT (Reactant)  
(condensation reaction of, with dodecylaldehyde and mercaptopropionic acid)

RN 25103-09-7 HCAPLUS

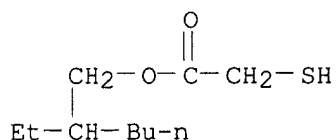
CN Acetic acid, mercapto-, isooctyl ester (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



IT 7659-86-1  
RL: RCT (Reactant)  
(condensation reaction of, with mercaptopropionic acid and salicylaldehyde)

RN 7659-86-1 HCAPLUS

CN Acetic acid, mercapto-, 2-ethylhexyl ester (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

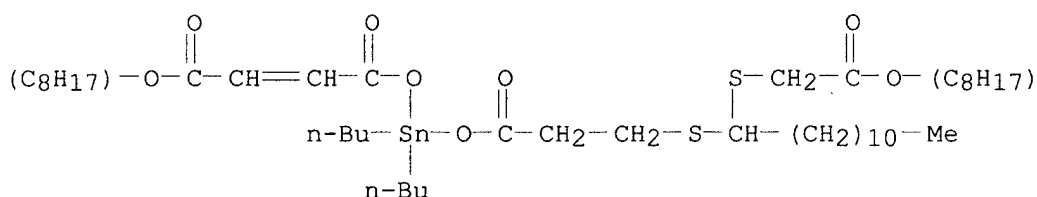


IT 50828-62-1P 60999-12-4P 60999-13-5P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)  
(prepn. and reaction with dibutyltin oxide)

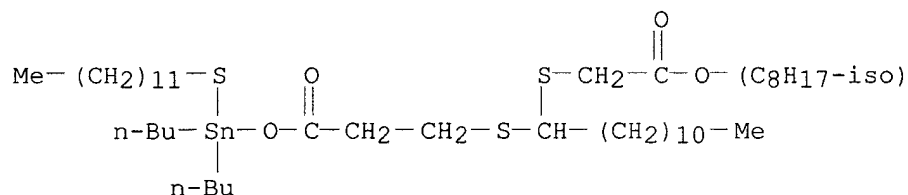
RN 50828-62-1 HCAPLUS

CN 9,11-Dioxa-3,5-dithia-10-stannapentadec-13-enedioic acid,  
10,10-dibutyl-8,12-dioxo-4-undecyl-, diisooctyl ester, (Z)- (9CI) (CA INDEX NAME)



RN 60999-12-4 HCAPLUS

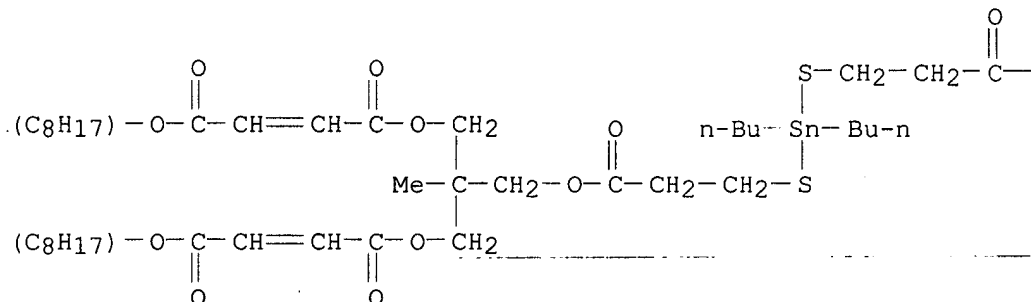
CN 9-Oxa-3,5,11-trithia-10-stannatricosanoic acid, 10,10-dibutyl-8-oxo-4-undecyl-, isooctyl ester (9CI) (CA INDEX NAME)



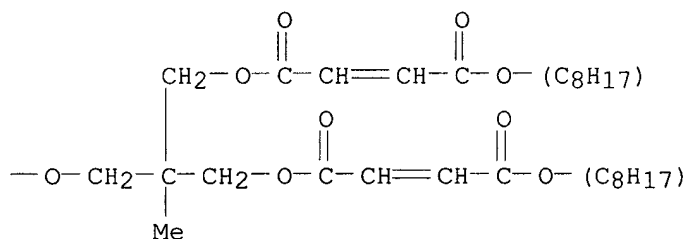
RN 60999-13-5 HCAPLUS

CN 5,9,19,23-Tetraoxa-13,15-dithia-14-stannaheptacos-2,25-dienedioic acid,  
14,14-dibutyl-7,21-bis[[[4-(isooctyloxy)-1,4-dioxo-2-butenyl]oxy]methyl]-  
7,21-dimethyl-4,10,18,24-tetraoxo-, diisooctyl ester, (all-Z)- (9CI) (CA INDEX NAME)

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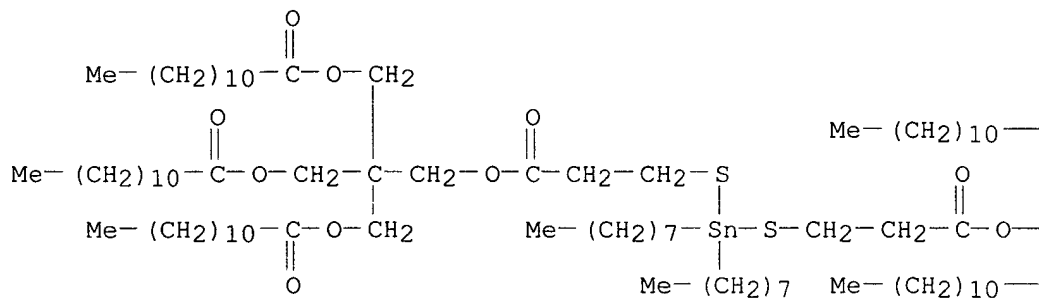
IT 60998-26-7P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)  
(prepn. and reaction with dioctyltin oxide)

RN 60998-26-7 HCAPLUS

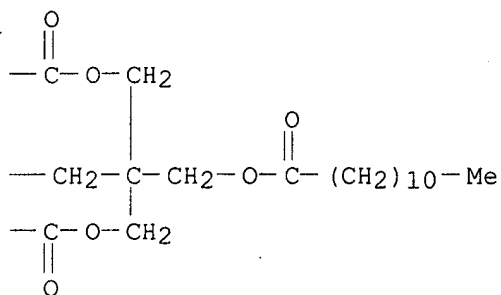
CN. 10,14-Dioxo-4,6-dithia-5-stannahexacosanoic acid, 5,5-dioctyl-9,15-dioxo-12,12-bis[[ (1-oxododecyl)oxy]methyl]-, 3-[(1-oxododecyl)oxy]-2,2-bis[[ (1-oxododecyl)oxy]methyl]propyl ester (9CI) (CA INDEX NAME)

PAGE 1-A





PAGE 1-B



IT 58824-62-7P 58824-64-9P 58832-17-0P

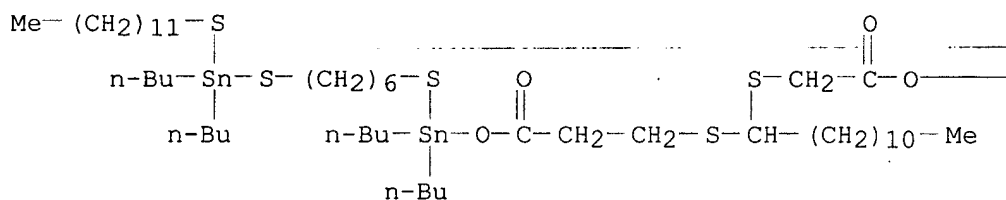
RL: PREP (Preparation)

(prepn. of)

RN 58824-62-7 HCAPLUS

CN 9-Oxa-3,5,11,18,20-pentathia-10,19-distannadotriacontanoic acid,  
 10,10,19,19-tetrabutyl-8-oxo-4-undecyl-, octyl ester (9CI) (CA INDEX  
 NAME)

PAGE 1-A



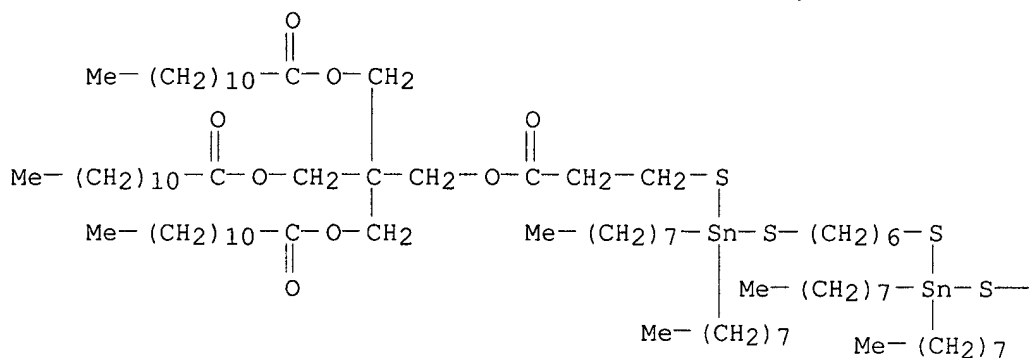
PAGE 1-B

— (CH<sub>2</sub>)<sub>7</sub>—Me

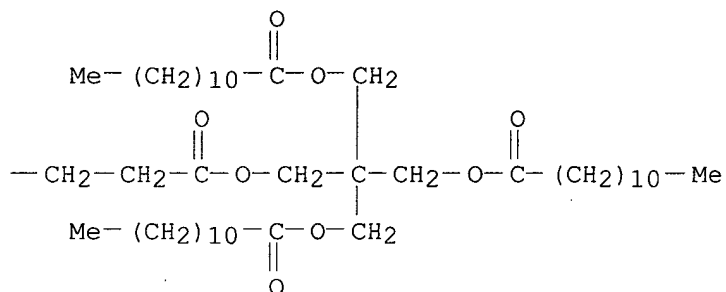
RN 58824-64-9 HCAPLUS

CN 4,6,13,15-Tetrathia-5,14-distannaoctadecanedioic acid,  
 5,5,14,14-tetraoctyl-, bis[3-[(1-oxododecyl)oxy]-2,2-bis[[1-oxododecyl)oxy]methyl]propyl] ester (9CI) (CA INDEX NAME)

PAGE 1-A



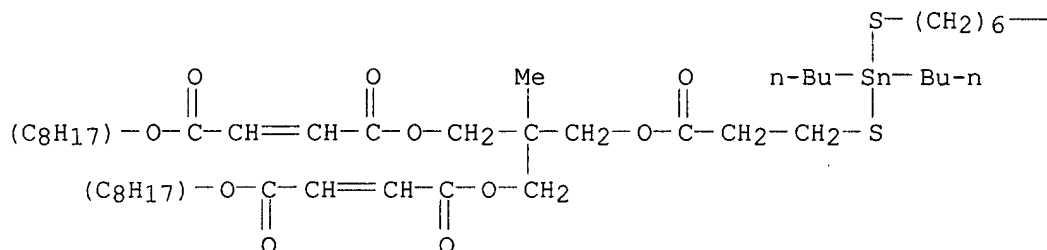
PAGE 1-B



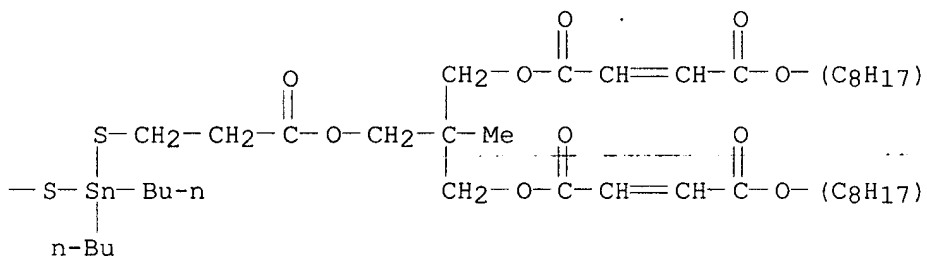
RN 58832-17-0 HCAPLUS

CN 5,9,28,32-Tetraoxa-13,15,22,24-tetrathia-14,23-distannahexatriaconta-2,34-dienedioic acid, 14,14,23,23-tetrabutyl-7,30-bis[[[4-(isooctyloxy)-1,4-dioxo-2-butenyl]oxy]methyl]-7,30-dimethyl-4,10,27,33-tetraoxo-, diisooctyl ester, (all-Z)- (9CI) (CA INDEX NAME)

PAGE 1-A



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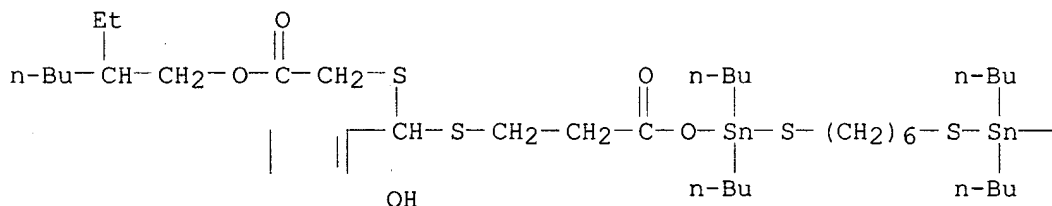
IT 58824-65-0 58828-55-0 60999-11-3

RL: MOA (Modifier or additive use); USES (Uses)  
(stabilizers, for PVC)

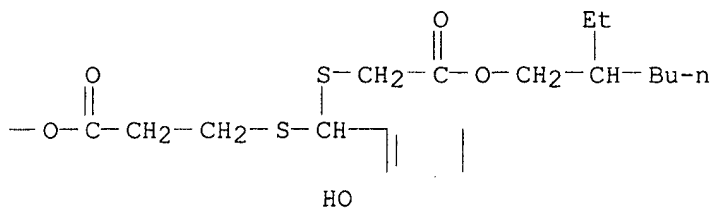
RN 58824-65-0 HCAPLUS

CN 9,20-Dioxa-3,5,11,18,24,26-hexathia-10,19-distannaoctacosanedioic acid,  
10,10,19,19-tetrabutyl-4,25-bis(2-hydroxyphenyl)-8,21-dioxo-,  
bis(2-ethylhexyl) ester (9CI) (CA INDEX NAME)

PAGE 1-A



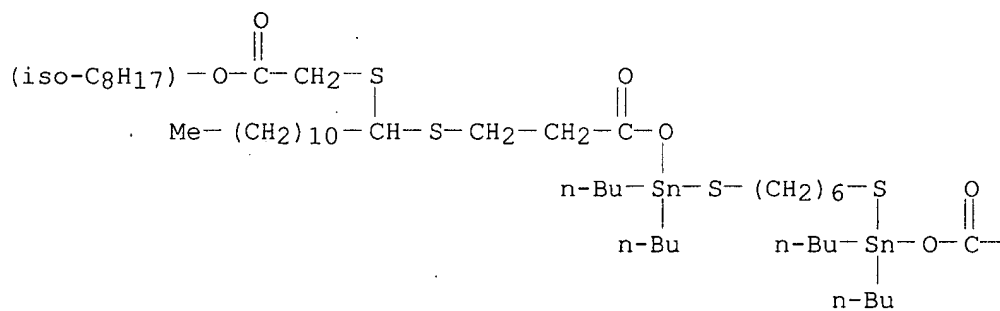
PAGE 1-B



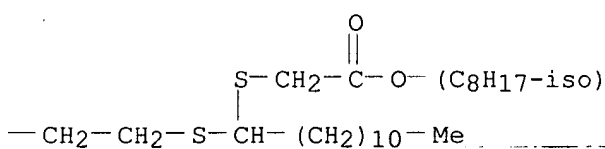
RN 58828-55-0 HCAPLUS

CN 9,20-Dioxa-3,5,11,18,24,26-hexathia-10,19-distannaoctacosanedioic acid,  
 10,10,19,19-tetrabutyl-8,21-dioxo-4,25-diundecyl-, diisooctyl ester (9CI)  
 (CA INDEX NAME)

PAGE 1-A



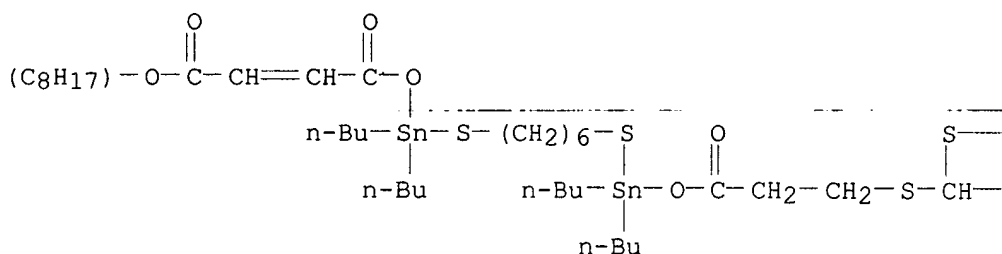
PAGE 1-B



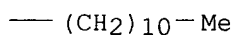
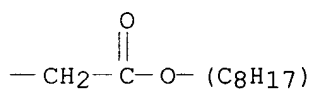
RN 60999-11-3 HCAPLUS

CN 5,16-Dioxa-7,14,20,22-tetrathia-6,15-distannatetracos-2-enedioic acid,  
 6,6,15,15-tetrabutyl-4,17-dioxo-21-undecyl-, diisooctyl ester, (Z)- (9CI)  
 (CA INDEX NAME)

PAGE 1-A



PAGE 1-B

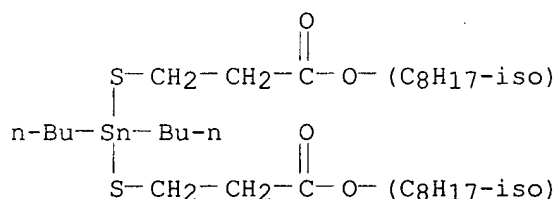


L55 ANSWER 16 OF 38 HCAPLUS COPYRIGHT 2002 ACS  
 AN 1976:422370 HCAPLUS  
 DN 85:22370  
 TI Foamable plastic mixture  
 IN Mueller, Horst; Sander, Hans J.; Buessing, Juergen  
 PA Ciba-Geigy Marienberg G.m.b.H., Ger.  
 SO Ger. Offen., 19 pp.  
 CODEN: GWXXBX  
 DT **Patent**  
 LA German  
 IC C08K; C08J  
 CC 36-6 (Plastics Manufacture and Processing)  
 FAN.CNT 1

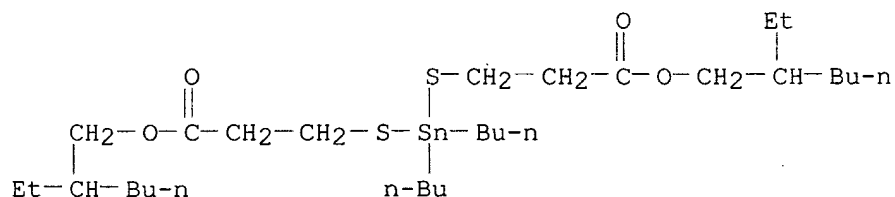
*Not reverse*

|      | PATENT NO.      | KIND | DATE     | APPLICATION NO. | DATE     |
|------|-----------------|------|----------|-----------------|----------|
| PI   | DE 2444991      | A1   | 19760401 | DE 1974-2444991 | 19740920 |
|      | DE 2444991      | C2   | 19831201 |                 |          |
|      | CH 623341       | A    | 19810529 | CH 1975-12010   | 19750916 |
|      | BE 833608       | A1   | 19760319 | BE 1975-160193  | 19750919 |
|      | DK 7504214      | A    | 19760321 | DK 1975-4214    | 19750919 |
|      | SE 7510520      | A    | 19760322 | SE 1975-10520   | 19750919 |
|      | SE 421133       | B    | 19811130 |                 |          |
|      | SE 421133       | C    | 19820311 |                 |          |
|      | NO 7503202      | A    | 19760323 | NO 1975-3202    | 19750919 |
|      | NO 144458       | B    | 19810525 |                 |          |
|      | NO 144458       | C    | 19810902 |                 |          |
|      | NL 7511111      | A    | 19760323 | NL 1975-11111   | 19750919 |
|      | FR 2285424      | A1   | 19760416 | FR 1975-28743   | 19750919 |
|      | FR 2285424      | B1   | 19790309 |                 |          |
|      | ES 441127       | A1   | 19770316 | ES 1975-441127  | 19750919 |
|      | AT 347693       | B    | 19790110 | AT 1975-7195    | 19750919 |
|      | ZA 7505997      | A    | 19761027 | ZA 1975-5997    | 19750922 |
|      | AU 7585060      | A1   | 19770331 | AU 1975-85060   | 19750922 |
| PRAI | DE 1974-2444991 |      | 19740920 |                 |          |

- AB Organotin oxides and/or alcoholates such as dibutyltin oxide (I) [818-08-6], dibutyltin bis(isooctyl .beta.-mercaptopropionate) (II) [26761-46-6], and dibutyltin dimethoxide [1067-55-6] were used as activators for azodicarbonamide (III) [123-77-3] blowing agent in PVC [9002-86-2] compns. to prep. foams at 165-200.degree.. Thus, a mixt. of PVC 100, dioctyl phthalate 50, epoxidized soybean oil 3, TiO<sub>2</sub> 3, III 2, and a soln. of 2 moles I and 1 mole II 1 g was heated at 180.degree. to prep. foam with d. 0.71.
- ST azodicarbonamide blowing agent activator; PVC foaming azodicarbonamide activator; tin compd activator azodicarbonamide
- IT 818-08-6 870-08-6 1067-55-6 2273-45-2 15546-11-9 15895-46-2  
25155-22-0 26738-80-7 26761-46-6 34833-30-2 51590-67-1  
53202-61-2 59571-07-2 59571-08-3 59571-09-4 59597-55-6  
RL: CAT (Catalyst use); USES (Uses)  
(activators, for azodicarbonamide blowing agent)
- IT 123-77-3  
RL: USES (Uses)  
(blowing agents, activators for, organotin compds. as)
- IT 9002-86-2P  
RL: PEP (Physical, engineering or chemical process); PREP (Preparation);  
PROC (Process)  
(cellular, manuf. of, activators for diazodicarbonamide in)
- IT 30374-01-7  
RL: USES (Uses)  
(tin compds. contg., activators, for azodicarbonamide blowing agent)
- IT 26761-46-6 53202-61-2  
RL: CAT (Catalyst use); USES (Uses)  
(activators, for azodicarbonamide blowing agent)
- RN 26761-46-6 HCAPLUS
- CN Propanoic acid, 3,3'-[(dibutylstannylene)bis(thio)]bis-, diisooctyl ester (9CI) (CA INDEX NAME)

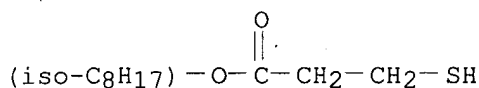


- RN 53202-61-2 HCAPLUS
- CN 10-Oxa-4,6-dithia-5-stannahexadecanoic acid, 5,5-dibutyl-12-ethyl-9-oxo-, 2-ethylhexyl ester (9CI) (CA INDEX NAME)



- IT 30374-01-7  
RL: USES (Uses)  
(tin compds. contg., activators, for azodicarbonamide blowing agent)
- RN 30374-01-7 HCAPLUS

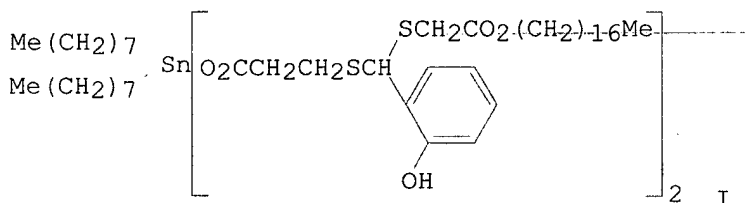
CN Propanoic acid, 3-mercapto-, isooctyl ester (9CI) (CA INDEX NAME)



L55 ANSWER 17 OF 38 HCAPLUS COPYRIGHT 2002 ACS  
 AN 1976:165656 HCAPLUS  
 DN 84:165656  
 TI Organotin compounds stabilizers for vinyl halide polymers  
 IN Collins, John D.; Coates, Harold; Siddiqui, Iftikhar H.  
 PA Albright and Wilson Ltd., UK  
 SO U.S., 14 pp.  
 CODEN: USXXAM  
 DT **Patent**  
 LA English  
 IC C08J  
 NCL 260045750  
 CC 36-6 (Plastics Manufacture and Processing)  
 FAN.CNT 2

|      | PATENT NO.     | KIND | DATE     | APPLICATION NO. | DATE         |
|------|----------------|------|----------|-----------------|--------------|
| PI   | US 3928284     | A    | 19751223 | US 1974-463452  | 19740424 <-- |
|      | US 4020090     | A    | 19770426 | US 1974-525119  | 19741119 <-- |
| PRAI | US 1972-308018 |      | 19721120 |                 |              |
| GI   | GB 1971-53892  |      | 19711119 |                 |              |

*Not review*



AB A series of 25 Sn- and S-contg. org. stabilizers was synthesized; 18 stabilizers were evaluated by adding them to rigid PVC [9002-86-2] (com. Corvic D55/9) compns., heating, and detg. Gardner colour no. (C). The best was stabilizer I [50828-75-6]; a sample contg. PVC 100, Plastilube 30 0.5-1.0, and I 2 parts had C = 2 after 20 min at 190.degree. compared with C = 5 for a sample contg. 2 parts dibutyltin bis(isooctylthioglycolate). I was prepd. by refluxing salicylaldehyde 0.25, isooctyl thioglycolate 0.25, HSCH<sub>2</sub>CH<sub>2</sub>CO<sub>2</sub>H 0.25, and dioctyltin oxide 0.125 moles in 300 ml benzene contg. 0.1 g ZnCl<sub>2</sub> and isolated by distn.

ST PVC stabilizer alkyltin mercaptoester; organotin stabilizer rigid PVC; heat stabilizer PVC tin

IT Heat stabilizers  
 (alkyltin mercaptoesters, for rigid PVC)

IT 9002-86-2  
 RL: USES (Uses)  
 (heat stabilizers for rigid, alkyltin mercaptoesters as)

IT 41376-60-7 50674-07-2 50674-08-3

50674-09-4 50674-11-8 50674-12-9  
50674-13-0 50828-62-1 50828-63-2  
50828-64-3 50828-65-4 50828-66-5  
50828-67-6 50828-70-1 50828-71-2  
50828-72-3 50828-73-4 50828-74-5  
50828-75-6 50928-96-6 58993-98-9  
58993-99-0 59007-32-8 59007-33-9

RL: MOA (Modifier or additive use); USES (Uses)  
(heat stabilizers, for rigid PVC)

IT 36653-82-4

RL: RCT (Reactant)  
(reaction of, with S,S-(cyclohexylene)bis(mercaptoacetic acid) and diocetyl tin oxide)

IT 50828-69-8

RL: RCT (Reactant)  
(reaction of, with S-[1-(isooctyloxycarbonylmethylthio)-dodecyl]-.beta.-mercaptopropionic acid and diocetyl tin oxide)

IT 20292-00-6 50674-15-2 50828-68-7

RL: RCT (Reactant)  
(reaction of, with S-[.alpha.-(isooctyloxycarbonylmethylthio)-o-hydroxybenzyl]-.beta.-mercaptopropionic acid and diocetyl tin oxide)

IT 818-08-6 870-08-6

RL: RCT (Reactant)  
(reaction of, with aldehyde-mercaptoacid-mercaptoester mixts., in manuf. of alkyltin mercaptoester stabilizers)

IT 107-96-0

RL: RCT (Reactant)  
(reaction of, with aldehyde-mercaptoester-dialkyltin oxide mixts. in manuf. of alkyltin mercaptoester stabilizers)

IT 50674-17-4 58993-97-8

RL: RCT (Reactant)  
(reaction of, with alkyltin oxides and .beta.-mercaptopropionic acid)

IT 4265-54-7

RL: RCT (Reactant)  
(reaction of, with cetyl alc. and diocetyl tin oxide)

IT 31335-29-2

RL: RCT (Reactant)  
(reaction of, with diocetyl tin oxide)

IT 123-11-5

RL: RCT (Reactant)  
(reaction of, with isooctyl thioglycolate and mercaptopropionic acid)

IT 97-96-1

RL: RCT (Reactant)  
(reaction of, with isooctyl thioglycolate and .beta.-mercaptopropionic acid)

IT 3746-40-5

RL: RCT (Reactant)  
(reaction of, with maleic anhydride)

IT 112-55-0 3746-39-2 25103-09-7 30374-01-7

RL: RCT (Reactant)  
(reaction of, with mercaptoacid-aldehyde-dialkyltin mixts. in manuf. of alkyltin mercaptoester stabilizers)

IT 112-54-9

RL: RCT (Reactant)  
(reaction of, with mercaptoacid-mercaptoester-dialkyltin oxide mixts. in manuf. of alkyltin mercaptoester stabilizers)

IT 30137-97-4

RL: RCT (Reactant)  
(reaction of, with mercaptopropionic acid derivs.)

IT 141-97-9



RL: RCT (Reactant)  
 (reaction of, with .beta.-mercaptopropionic acid and lauryl  
 thioglycolate and dibutyltin oxide)

IT 50828-61-0  
 RL: RCT (Reactant)  
 (reactions of, with isooctyl maleate and dialkyltin oxides)

IT 50828-60-9  
 RL: RCT (Reactant)  
 (reactions of, with isooctyl maleate and dioctyltin oxide)

IT 50674-14-1  
 RL: RCT (Reactant)  
 (reactions of, with mercaptoesters and dioctyltin oxide)

IT 90-02-8, reactions  
 RL: RCT (Reactant)  
 (with mercaptoacid-mercaptoester-dialkyltin oxide mixts., in manuf. of  
 alkyltin mercaptoester stabilizers)

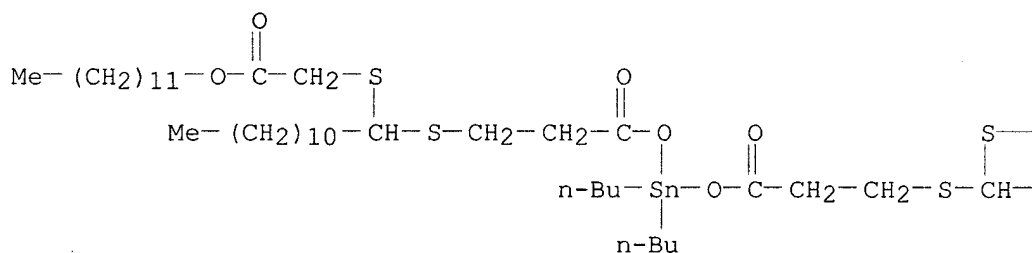
IT 108-31-6, reactions  
 RL: RCT (Reactant)  
 (with nonyl thioglycolate)

IT 41376-60-7 50674-07-2 50674-08-3  
 50674-09-4 50674-11-8 50674-12-9  
 50674-13-0 50828-62-1 50828-63-2  
 50828-64-3 50828-65-4 50828-66-5  
 50828-67-6 50828-70-1 50828-71-2  
 50828-72-3 50828-73-4 50828-74-5  
 50828-75-6 50928-96-6 58993-98-9  
 58993-99-0 59007-32-8 59007-33-9  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (heat stabilizers, for rigid PVC)

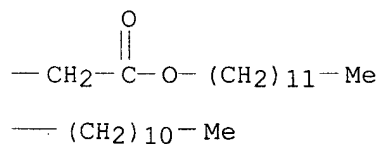
RN 41376-60-7 HCAPLUS

CN 13,22,24,33-Tetraoxa-16,18,28,30-tetrathia-23-stannapentatetracontane,  
 23,23-dibutyl-14,21,25,32-tetraoxo-17,2a-diundecyl- (9CI) (CA INDEX NAME)

PAGE 1-A



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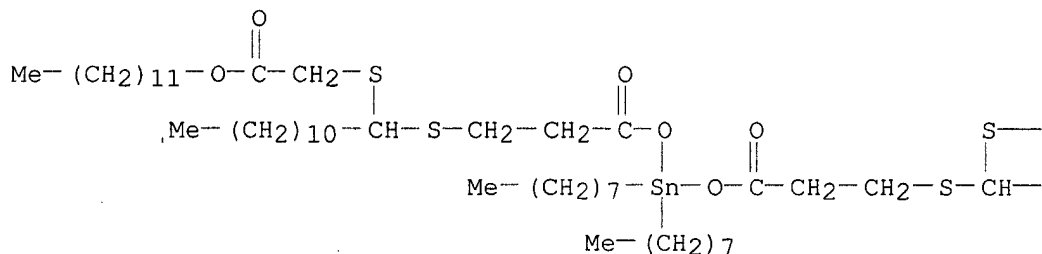


RN 50674-07-2 HCAPLUS

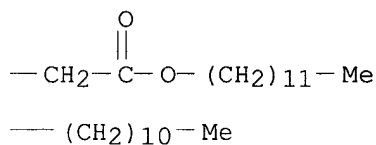
CN 9,11-Dioxa-3,5,15,17-tetrathia-10-stannanonadecanedioic acid,

10,10-dioctyl-8,12-dioxo-4,16-diundecyl-, didodecyl ester (9CI) (CA INDEX NAME)

PAGE 1-A

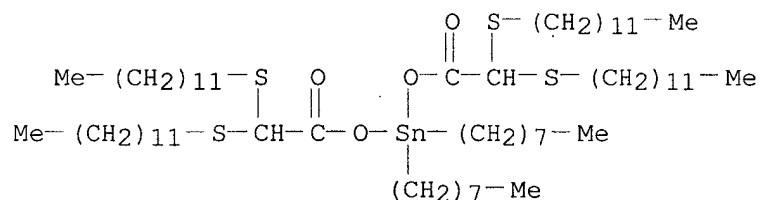


PAGE 1-B



RN 50674-08-3 HCAPLUS

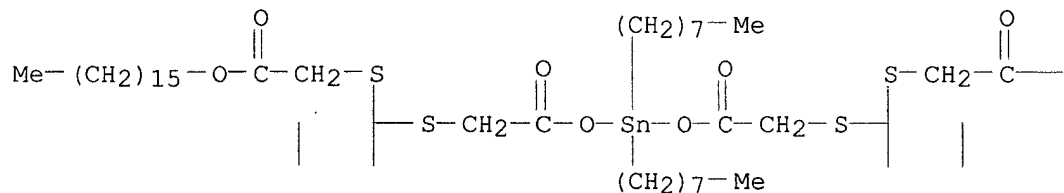
15,17-Dioxo-12,20-dithia-16-stannadotriacontane, 13,19-bis(dodecylthio)-  
16,16-dioctyl-14,18-dioxo- (9CI) (CA INDEX NAME)



RN. 50674-09-4 HCAPLUS

|    |                                                                                                                           |                 |
|----|---------------------------------------------------------------------------------------------------------------------------|-----------------|
| CN | Acetic acid, 2,2'-[(dioctylstannylene)bis[oxy(2-oxo-2,1-ethanediyl)thiocyclohexylidenethio]]bis-, dihexadecyl ester (9CI) | (CA INDEX NAME) |
|----|---------------------------------------------------------------------------------------------------------------------------|-----------------|

PAGE 1-A



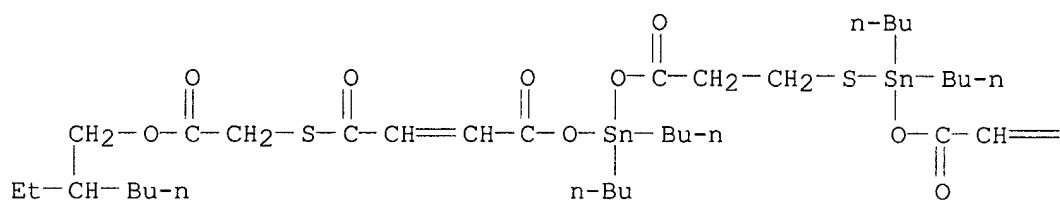
PAGE 1-B

$$\text{---O---(CH}_2\text{)}_{15}\text{---Me}$$

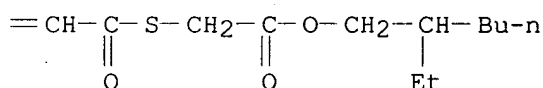
RN 50674-11-8 HCAPLUS

8,10,16-Trioxa-3,14,21-trithia-9,15-distannatricosa-5,18-dienedioic acid,  
9,9,15,15-tetrabutyl-4,7,11,17,20-pentaoxo-, bis(2-ethylhexyl) ester (9CI)  
(CA INDEX NAME)

PAGE 1-A



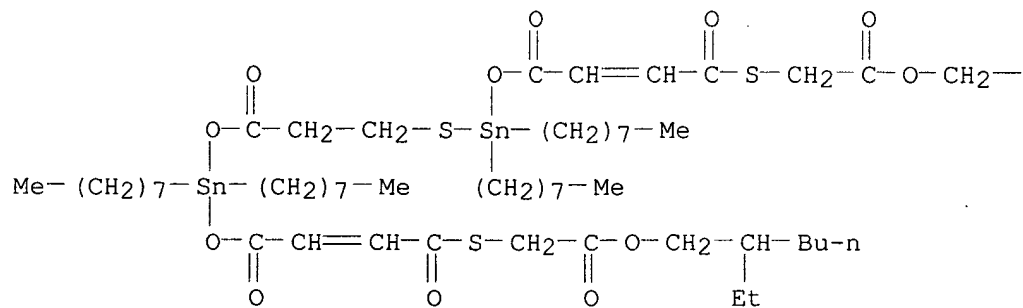
PAGE 1-B



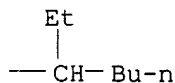
RN 50674-12-9 HCAPLUS

CN 8,10,16-Trioxa-3,14,21-trithia-9,15-distannatricosa-5,18-dienedioic acid,  
9,9,15,15-tetraoctyl-4,7,11,17,20-pentaoxo-, bis(2-ethylhexyl) ester (9CI)  
(CA INDEX NAME)

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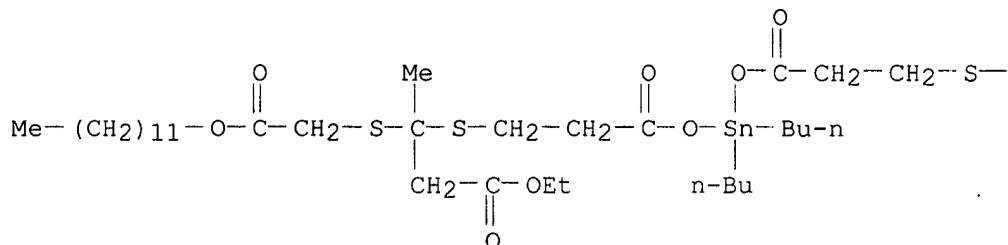
PAGE 1-B



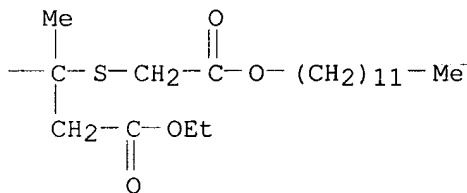
RN 50674-13-0 HCAPLUS

CN 9,11-Dioxa-3,5,15,17-tetrathia-10-stannanonadecanedioic acid,  
10,10-dibutyl-4,16-bis(2-ethoxy-2-oxoethyl)-4,16-dimethyl-8,12-dioxo-,  
didodecyl ester (9CI) (CA INDEX NAME)

PAGE 1-A

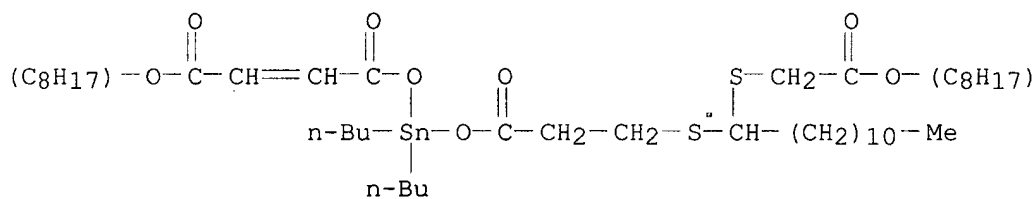


PAGE 1-B



RN 50828-62-1 HCAPLUS

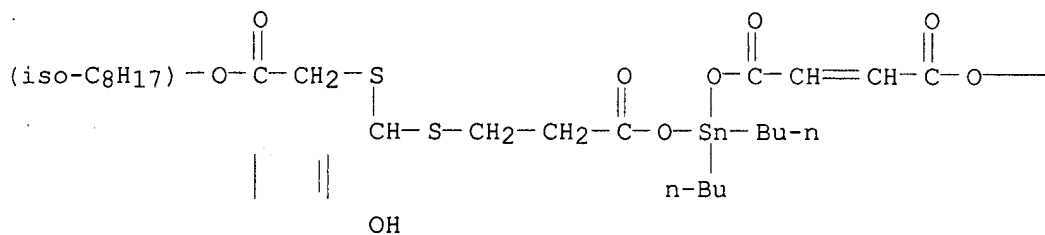
CN 9,11-Dioxa-3,5-dithia-10-stannapentadec-13-enedioic acid,  
10,10-dibutyl-8,12-dioxo-4-undecyl-, diisooctyl ester, (Z)- (9CI) (CA  
INDEX NAME)



RN 50828-63-2 HCAPLUS

CN 9,11-Dioxa-3,5-dithia-10-stannapentadec-13-enedioic acid,  
10,10-dibutyl-4-(2-hydroxyphenyl)-8,12-dioxo-, diisooctyl ester, (Z)-  
(9CI) (CA INDEX NAME)

PAGE 1-A

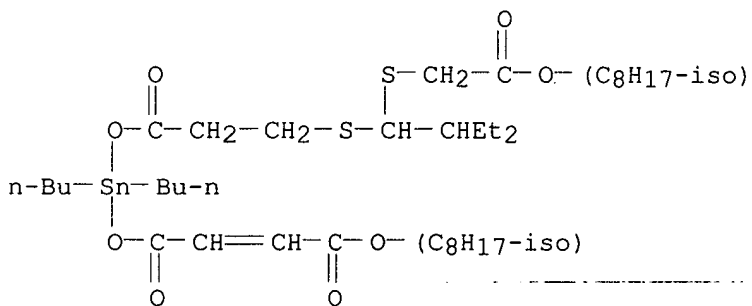


PAGE 1-B

— (C<sub>8</sub>H<sub>17</sub>-iso)

RN 50828-64-3 HCAPLUS

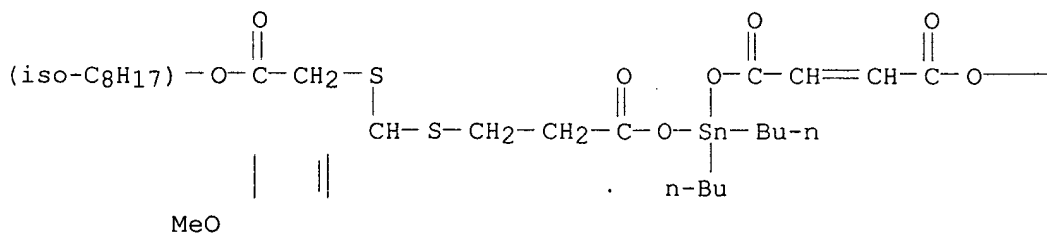
CN 9,11-Dioxa-3,5-dithia-10-stannapentadec-13-enedioic acid,  
10,10-dibutyl-4-(1-ethylpropyl)-8,12-dioxo-, diisooctyl ester, (Z)- (9CI)  
(CA INDEX NAME)



RN 50828-65-4 HCAPLUS

CN 9,11-Dioxa-3,5-dithia-10-stannapentadec-13-enedioic acid,  
10,10-dibutyl-4-(4-methoxyphenyl)-8,12-dioxo-, diisooctyl ester, (Z)-  
(9CI) (CA INDEX NAME)

PAGE 1-A



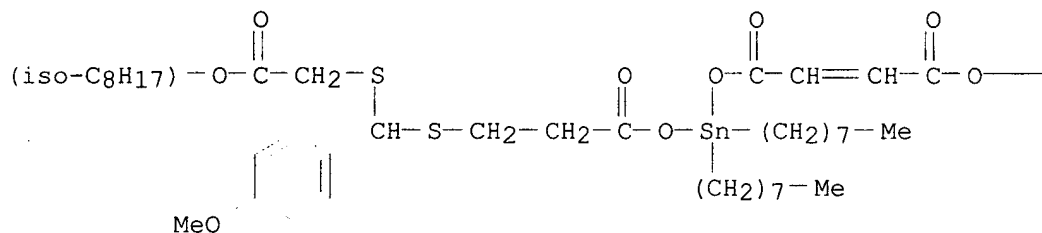
PAGE 1-B

— (C<sub>8</sub>H<sub>17</sub>-iso)

RN 50828-66-5 HCAPLUS

CN 9,11-Dioxa-3,5-dithia-10-stannapentadec-13-enedioic acid,  
4-(4-methoxyphenyl)-10,10-dioctyl-8,12-dioxo-, diisooctyl ester, (Z)-  
(9CI) (CA INDEX NAME)

PAGE 1-A

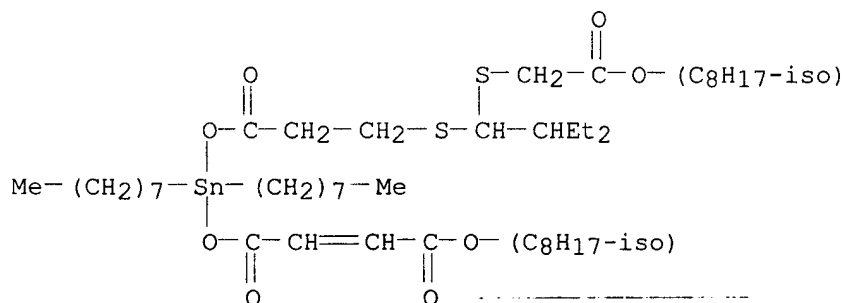


PAGE 1-B

— (C<sub>8</sub>H<sub>17</sub>-iso)

RN 50828-67-6 HCAPLUS

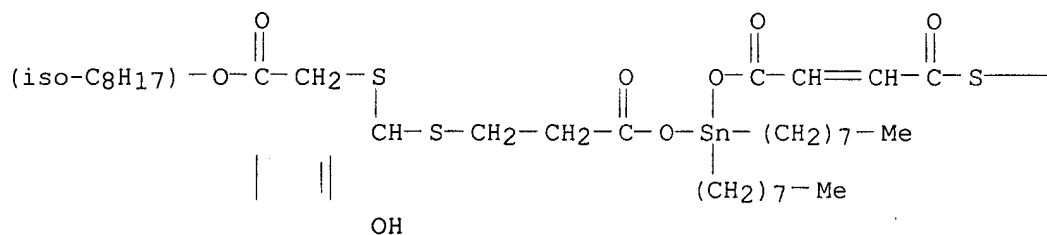
CN 9,11-Dioxa-3,5-dithia-10-stannapentadec-13-enedioic acid,  
4-(1-ethylpropyl)-10,10-dioctyl-8,12-dioxo-, diisooctyl ester, (Z)- (9CI)  
(CA INDEX NAME)



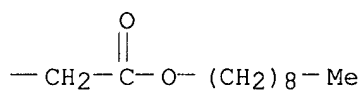
RN 50828-70-1 HCAPLUS

CN 9,11-Dioxa-3,5,16-trithia-10-stannaoctadec-13-enedioic acid,  
4-(2-hydroxyphenyl)-10,10-dioctyl-8,12,15-trioxo-, 1-isooctyl 18-nonyl  
ester, (Z)- (9CI) (CA INDEX NAME)

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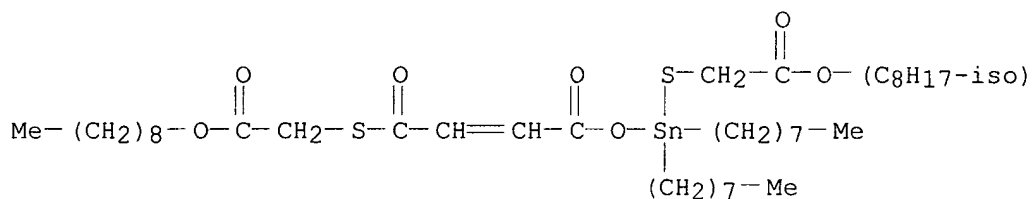


PAGE 1-B



RN 50828-71-2 HCAPLUS

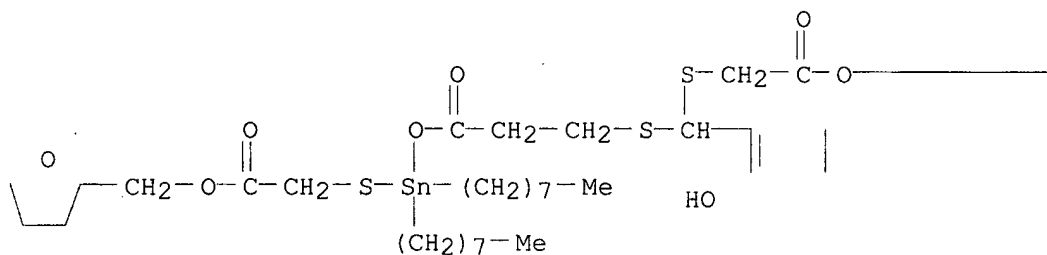
CN 5-Oxa-3,10-dithia-4-stannadodec-7-enedioic acid, 4,4-dioctyl-6,9-dioxo-,  
1-isooctyl 12-nonyl ester, (Z)- (9CI) (CA INDEX NAME)



RN 50828-72-3 HCAPLUS

CN 5-Oxa-3,9,11-trithia-4-stannatridecanedioic acid, 10-(2-hydroxyphenyl)-4,4-dioctyl-6-oxo-, 13-isooctyl 1-[(tetrahydro-2-furanyl)methyl] ester (9CI)  
(CA INDEX NAME)

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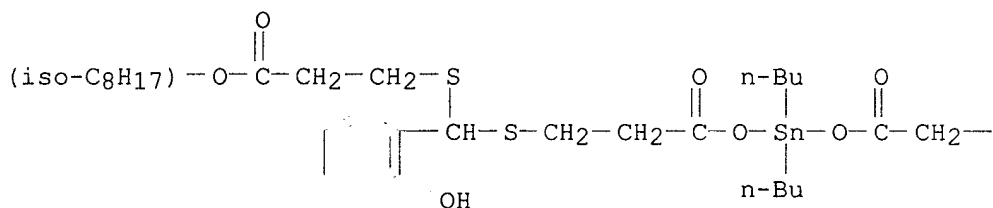
PAGE 1-B

— (C<sub>8</sub>H<sub>17</sub>-iso)

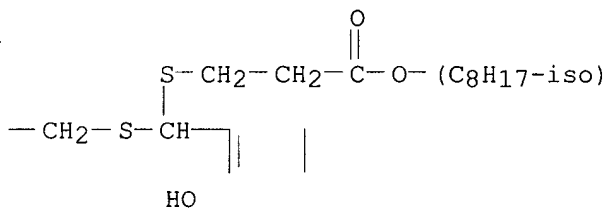
RN 50828-73-4 HCAPLUS

CN 10,12-Dioxa-4,6,16,18-tetrathia-11-stannaheneicosanedioic acid,  
11,11-dibutyl-15,17-bis(2-hydroxyphenyl)-9,13-dioxo-, diisooctyl ester  
(9CI) (CA INDEX NAME)

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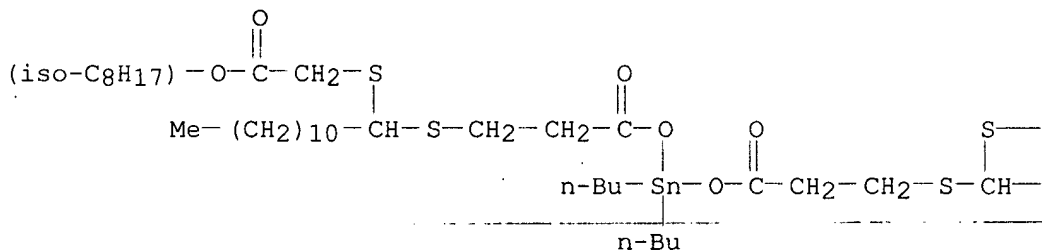
-PAGE 1-B-



RN 50828-74-5 HCAPLUS

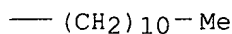
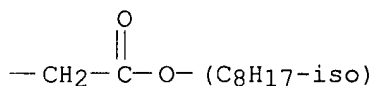
CN 9,11-Dioxa-3,5,15,17-tetrathia-10-stannanonadecanedioic acid,  
10,10-dibutyl-8,12-dioxo-4,16-diundecyl-, diisooctyl ester (9CI) (CA  
INDEX NAME)

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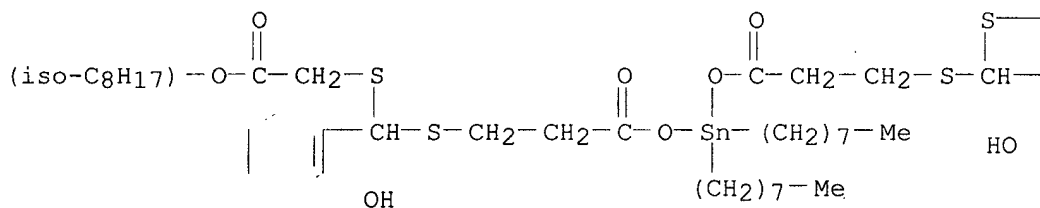
PAGE 1-B



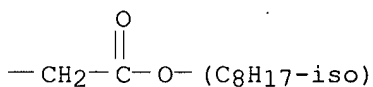
RN 50828-75-6 HCAPLUS

CN 9,11-Dioxa-3,5,15,17-tetrathia-10-stannanonadecanedioic acid,  
4,16-bis(2-hydroxyphenyl)-10,10-dioctyl-8,12-dioxo-, diisooctyl ester  
(9CI) (CA INDEX NAME)

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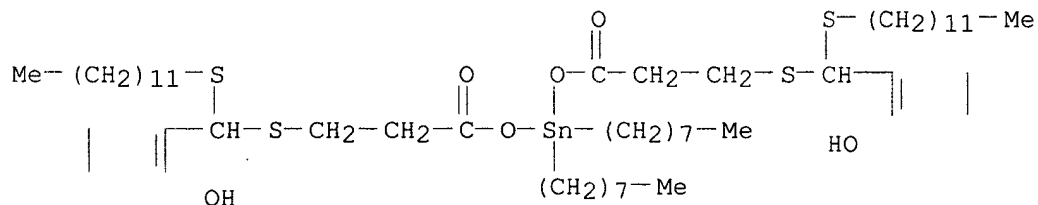


PAGE 1-B



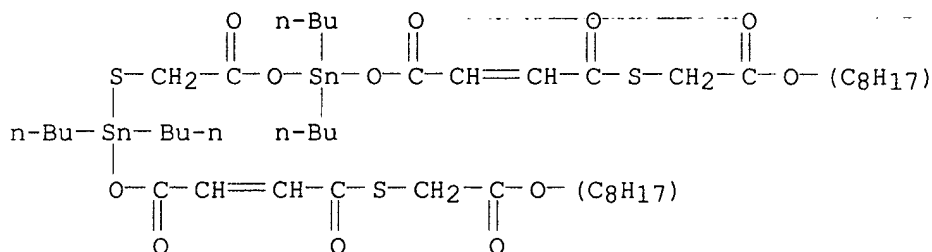
RN 50928-96-6 HCAPLUS

CN Phenol, 2,2'-[1,13-bis(dodecylthio)-7,7-dioctyl-5,9-dioxo-6,8-dioxa-2,12-dithia-7-stannatridecane-1,13-diyl]bis- (9CI) (CA INDEX NAME)



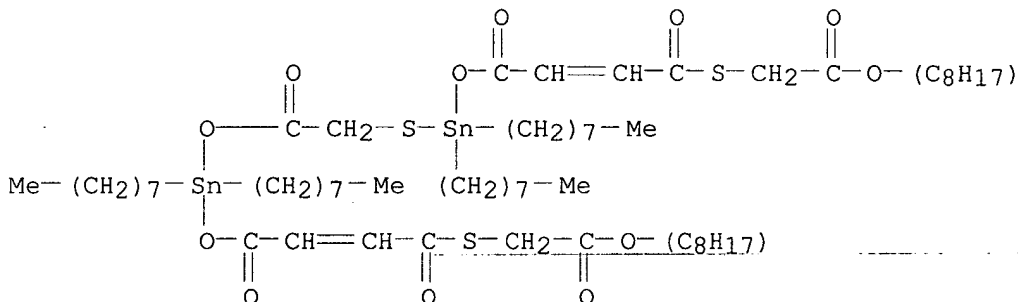
RN 58993-98-9 HCAPLUS

CN 8,10,15-Trioxa-3,13,20-trithia-9,14-distannadocosa-5,17-dienedioic acid,  
9,9,14,14-tetrabutyl-4,7,11,16,19-pentaoxo-, diisooctyl ester, (Z,Z)-  
(9CI) (CA INDEX NAME)



RN 58993-99-0 HCAPLUS

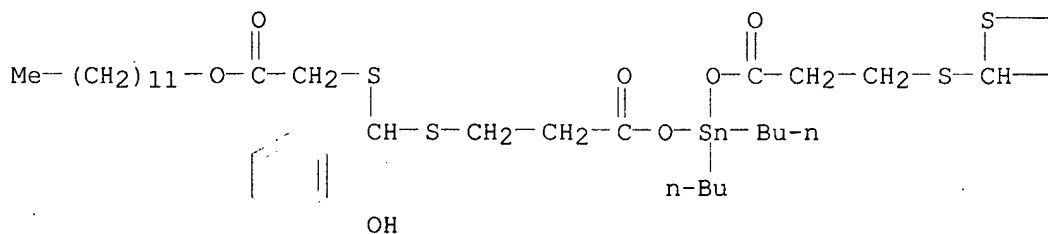
CN 8,10,15-Trioxa-3,13,20-trithia-9,14-distannadocosa-5,17-dienedioic acid,  
 9,9,14,14-tetraoctyl-4,7,11,16,19-pentaoxo-, diisooctyl ester, (Z,Z)-  
 (9CI) (CA INDEX NAME)



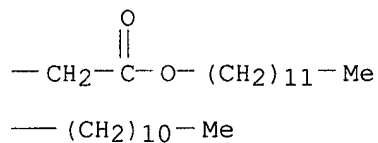
RN 59007-32-8 HCAPLUS

CN 9,11-Dioxa-3,5,15,17-tetrathia-10-stannanonadecanedioic acid,  
 10,10-dibutyl-4-(2-hydroxyphenyl)-8,12-dioxo-16-undecyl-, didodecyl ester  
 (9CI) (CA INDEX NAME)

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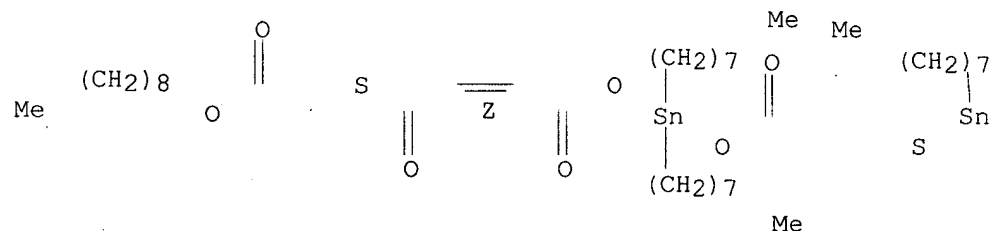
RN 59007-33-9 HCAPLUS

CN 8,10,16-Trioxa-3,14,21-trithia-9,15-distannatricosa-5,18-dienedioic acid,  
9,9,15,15-tetraoctyl-4,7,11,17,20-pentaoxo-, dinonyl ester, (Z,Z)- (9CI)  
(CA INDEX NAME)

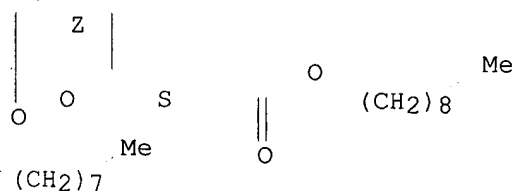
Double bond geometry as shown.

PAGE 1-A

0.



PAGE 1-B



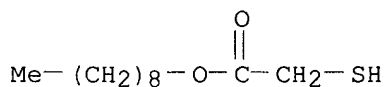
IT 3746-40-5

RL: RCT (Reactant)

(reaction of, with maleic anhydride)

RN 3746-40-5 HCAPLUS

CN Acetic acid, mercapto-, nonyl ester (7CI, 8CI, 9CI) (CA INDEX NAME)



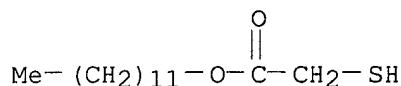
IT 3746-39-2 25103-09-7 30374-01-7

RL: RCT (Reactant)

(reaction of, with mercaptoacid-aldehyde-dialkyltin mixts. in manuf. of alkyltin mercaptoester stabilizers)

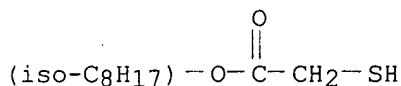
RN 3746-39-2 HCAPLUS

CN Acetic acid, mercapto-, dodecyl ester (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



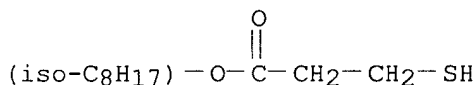
RN 25103-09-7 HCAPLUS

CN Acetic acid, mercapto-, isooctyl ester (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



RN 30374-01-7 HCAPLUS

CN Propanoic acid, 3-mercapto-, isooctyl ester (9CI) (CA INDEX NAME)



L55 ANSWER 18 OF 38 HCAPLUS COPYRIGHT 2002 ACS

AN 1976:151603 HCAPLUS

DN 84:151603

TI Esters and mixtures with organotin compounds

IN Coates, Harold; Collins, John Desmond; Siddiqui, Iftikhar H.

PA Albright and Wilson Ltd., UK

SO U.S., 7 pp.

CODEN: USXXAM

DT Patent

LA English

IC C09K; C08K

NCL 252400000R

CC 36-6 (Plastics Manufacture and Processing)

FAN.CNT 2

|      | PATENT NO.     | KIND | DATE     | APPLICATION NO. | DATE         |
|------|----------------|------|----------|-----------------|--------------|
| PI   | US 3925246     | A    | 19751209 | US 1974-442874  | 19740215 <-- |
|      | CS 181739      | P    | 19780331 | CS 1974-1172    | 19740218     |
|      | JP 50135149    | A2   | 19751027 | JP 1974-19155   | 19740219     |
|      | HU 170103      | P    | 19770428 | HU 1974-AI232   | 19740219     |
|      | CA 1048528     | A1   | 19790213 | CA 1974-192981  | 19740219     |
|      | US 3933744     | A    | 19760120 | US 1975-586955  | 19750616 <-- |
| PRAI | GB 1973-7984   |      | 19730219 |                 |              |
|      | US 1974-442874 |      | 19740215 |                 |              |

AB A series of 4 stabilizers with general formula

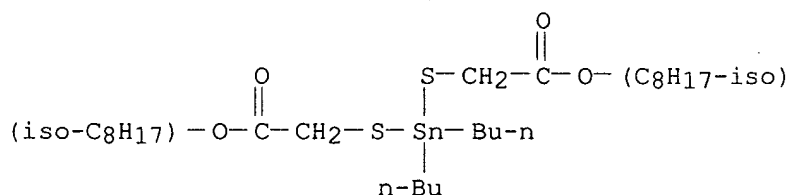
$\text{Me}(\text{CH}_2)_{16}\text{CO}_2\text{CH}_2\text{CH}(\text{OH})\text{CH}_2\text{O}_2\text{C}(\text{CH}_2)_n\text{SCHRS}(\text{CH}_2)_n\text{CO}_2\text{R}_1$  (R is Et<sub>2</sub>CH, p-MeOC<sub>6</sub>H<sub>4</sub>, Me(CH<sub>2</sub>)<sub>10</sub>, or o-HOC<sub>6</sub>H<sub>4</sub>, R<sub>1</sub> is isooctyl, n is 1 or 2) was prepd. and used to improve the heat resistance of PVC [9002-86-2].

Thus, refluxing glyceryl monostearate with HSCH<sub>2</sub>CH<sub>2</sub>CO<sub>2</sub>H in PhMe gave the corresponding ester which was further reacted with HSCH<sub>2</sub>CH<sub>2</sub>CO<sub>2</sub>R<sub>1</sub> and

*Not reviewed*

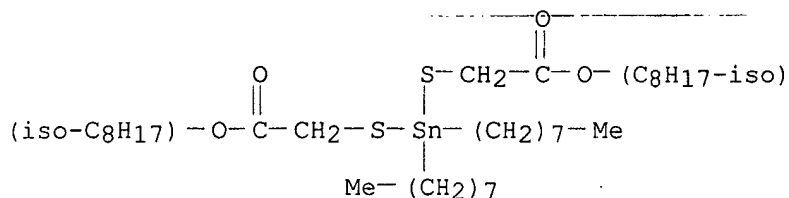
Et<sub>2</sub>CHCHO to give stabilizer I (R = Et<sub>2</sub>CH, R<sub>1</sub> = isooctyl, n = 2) (II) [58809-61-3]. A **compn.** contg. **PVC** (Corvic D55/09) 100, plastilube 30 lubricant 0.5, dioctyltin bis(isooctyl thioglycollate) [26401-97-8] 1.33, and II 0.080 parts was graded 3 on the Gardner Color Scale after heating 12.5 min at 190.degree., while a **compn.** contg. all the above ingredients except II was graded 7 in the same test.

- ST heat stabilizer **PVC** mercaptoester; **PVC** stabilizer  
glyceryl mercaptoester; alkyltin thioglycollate **PVC** stabilizer
- IT Heat stabilizers  
(glyceryl mercaptoesters-alkyltin thioglycollates as, for **PVC**)
- IT 9002-86-2  
RL: USES (Uses)  
(heat stabilizers for, glyceryl mercaptoesters and alkyltin thioglycollates as)
- IT 25168-24-5 26401-97-8 58777-21-2 58809-60-2  
58809-61-3 58994-00-6  
RL: MOA (Modifier or additive use); USES (Uses)  
(heat stabilizers, for **PVC**)
- IT 107-96-0  
RL: RCT (Reactant)  
(reaction of, with glyceryl monostearate and aldehydes and isooctyl mercaptoesters)
- IT 97-96-1 112-54-9 123-11-5  
RL: RCT (Reactant)  
(reaction of, with glyceryl monostearate and mercapto acids and isooctyl mercaptoesters)
- IT 31566-31-1  
RL: RCT (Reactant)  
(reaction of, with mercaptoacids and aldehydes and isooctyl mercaptoesters)
- IT 25103-09-7 30374-01-7  
RL: RCT (Reactant)  
(reactions of, with glyceryl monostearate and mercaptoacids and aldehydes)
- IT 68-11-1, reactions  
RL: RCT (Reactant)  
(with glyceryl monostearate and aldehydes and isooctyl mercaptoesters)
- IT 90-02-8, reactions  
RL: RCT (Reactant)  
(with glyceryl monostearate and mercaptoacids and isooctyl mercaptoesters)
- IT 25168-24-5 26401-97-8  
RL: MOA (Modifier or additive use); USES (Uses)  
(heat stabilizers, for **PVC**)
- RN 25168-24-5 HCAPLUS
- CN Acetic acid, 2,2'-[(dibutylstannylene)bis(thio)]bis-, diisooctyl ester  
(9CI) (CA INDEX NAME)



RN 26401-97-8 HCAPLUS

CN Acetic acid, 2,2'-[(dioctylstannylene)bis(thio)]bis-, diisooctyl ester  
(9CI) (CA INDEX NAME)



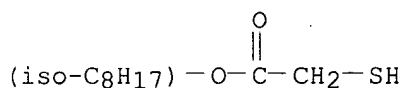
IT 25103-09-7 30374-01-7

RL: RCT (Reactant)

(reactions of, with glyceryl monostearate and mercaptoacids and aldehydes)

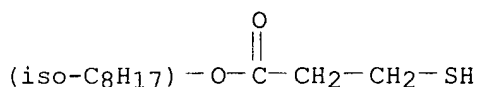
RN 25103-09-7 HCAPLUS

CN Acetic acid, mercapto-, isooctyl ester (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



RN 30374-01-7 HCAPLUS

|    |                                                   |                 |
|----|---------------------------------------------------|-----------------|
| CN | Propanoic acid, 3-mercapto-, isooctyl ester (9CI) | (CA INDEX NAME) |
|----|---------------------------------------------------|-----------------|



L55 ANSWER 19 OF 38 HCAPLUS COPYRIGHT 2002 ACS

AN 1976:136518 HCAPLUS

DN 84:136518

TI Novel stabilized polymer compositions

IN Coates, Harold; Collins, John Desmond; Siddiqui, Iftikhar H.

PA Albright and Wilson Ltd., UK

SO U.S., 11 pp.

CODEN: USXXAM

DT Patent

LA English

IC C08G

NCL 260045750S

CC 36-2 (Plastics Manufacture and Processing)

Section cross-reference(s): 29

FAN.CNT 2

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------------|------|------|-----------------|------|
|------------|------|------|-----------------|------|

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PI      US 3933750      A      19760120      US 1974-490240      19740722 <--
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|      |    |             |          |
|------|----|-------------|----------|
| PRAI | US | 1973-359176 | 19730510 |
|------|----|-------------|----------|

AB S-contg. Sn **compns.** with a lower Sn content than conventional S-contg. organotin compds. are useful stabilizers for halogen-contg. **vinyl** and **vinylidene** resins. Thus, salicylaldehyde

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[90-02-8] 24.4, 2-ethylhexyl thioglycolate [7659-86-1] 40.8, and .beta.-mercaptopropionic acid [107-96-0] 21.2 g were refluxed in 150 ml. toluene in the presence of 0.1 g p-toluenesulfonic acid until the calcd. amt. of water had collected. After cooling 24.9 g dibutyltin oxide (I) [818-08-6] was added, the mixt. was refluxed, 24.9 g I was added, the mixt. was refluxed, and 15.0 g 1,6-hexanedithiol [1191-43-1] was added dropwise to give [Me(CH<sub>2</sub>)<sub>3</sub>CH<sub>2</sub>CH<sub>2</sub>O<sub>2</sub>CCH<sub>2</sub>SCH<sub>2</sub>CH<sub>2</sub>CO<sub>2</sub>SnBu<sub>2</sub>S(CH<sub>2</sub>)<sub>3</sub>]<sub>2</sub> (R = o-hydroxyphenyl) (II) [58824-65-0] which was an effective stabilizer for rigid PVC [9002-86-2] either alone or in an admixt with monobutyltin compds. and hindered phenols. Six similar stabilizers were also prepd.

ST tin sulfur stabilizer PVC; vinyl chloride polymer stabilizer; organothiotin compd stabilizer PVC

IT Heat stabilizers

(organothiotin compds., for vinyl chloride polymers)

IT 58824-65-0

RL: MOA (Modifier or additive use); USES (Uses)

(heat stabilizers, for vinyl chloride polymers)

IT 107-96-0

RL: RCT (Reactant)

(reaction of, with aldehydes, dialkyltin oxides, hexanedithiol and thioglycolates)

IT 1191-43-1

RL: RCT (Reactant)

(reaction of, with aldehydes, dialkyltin oxides, mercaptoacids and thioglycolates)

IT 818-08-6 870-08-6

RL: RCT (Reactant)

(reaction of, with aldehydes, hexanedithiol, mercaptoacids and thioglycolates)

IT 58824-63-8

RL: RCT (Reactant)

(reaction of, with dibutyltin oxide and dodecylmercaptan)

IT 58853-41-1

RL: RCT (Reactant)

(reaction of, with dibutyltin oxide and hexanedithiol)

IT 25103-09-7

RL: RCT (Reactant)

(reaction of, with dibutyltin oxide, dodecylaldehyde, hexanedithiol and mercaptopropionic acid)

IT 90-02-8, reactions

RL: RCT (Reactant)

(reaction of, with dibutyltin oxide, ethylhexyl thioglycolate, hexanedithiol and mercaptopropionic acid)

IT 77-85-0

RL: RCT (Reactant)

(reaction of, with dibutyltin oxide, hexanedithiol, isooctyl alcohol, maleic anhydride and mercaptopropionic acid)

IT 26952-21-6

RL: RCT (Reactant)

(reaction of, with dibutyltin oxide, hexanedithiol, maleic anhydride, mercaptopropionic acid and trimethylolethane)

IT 112-54-9

RL: RCT (Reactant)

(reaction of, with dibutyltin oxide, hexanedithiol, mercaptopropionic acid and isooctyl thioglycolate)

IT 7659-86-1

RL: RCT (Reactant)

(reaction of, with dibutyltin oxide, hexanedithiol, mercaptopropionic acid and silicyaldehyde)

IT 2370-71-0  
 RL: RCT (Reactant)  
 (reaction of, with hexanedithiol and dodecylaldehyde-isoctyl  
 thioglycolate-mercaptopropionic acid reaction products)

IT 58824-60-5  
 RL: RCT (Reactant)  
 (reaction of, with monooctyl maleate and hexanedithiol)

IT 9002-86-2  
 RL: USES (Uses)  
 (stabilizers for, organothiotin compds. as)

IT 58824-59-2 58824-61-6 58824-62-7  
 58824-64-9 58828-55-0 58832-17-0  
 RL: USES (Uses)  
 (stabilizers, for vinyl chloride polymers)

IT 108-31-6, reactions  
 RL: RCT (Reactant)  
 (with dibutyltin oxide, hexanedithiol, isoctyl alcohol,  
 mercaptopropionic acid and trimethylolethane)

IT 115-77-5, reactions  
 RL: RCT (Reactant)  
 (with dioctyltin oxide, hexanedithiol, lauric acid and  
 mercaptopropionic acid)

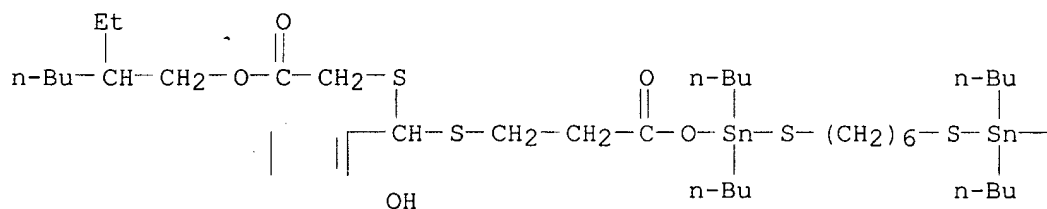
IT 143-07-7, reactions  
 RL: RCT (Reactant)  
 (with dioctyltin oxide, hexanedithiol, mercaptopropionic acid and  
 pentaerythritol)

IT 58824-65-0  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (heat stabilizers, for vinyl chloride polymers)

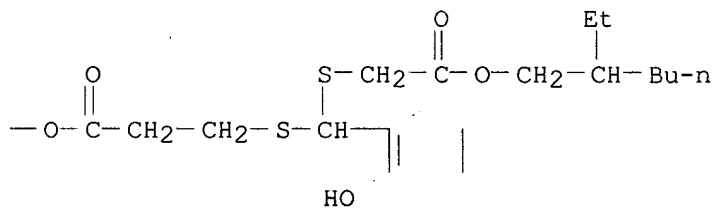
RN 58824-65-0 HCAPLUS

CN 9,20-Dioxa-3,5,11,18,24,26-hexathia-10,19-distannaoctacosanedioic acid,  
 10,10,19,19-tetrabutyl-4,25-bis(2-hydroxyphenyl)-8,21-dioxo-,  
 bis(2-ethylhexyl) ester (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



IT 58853-41-1

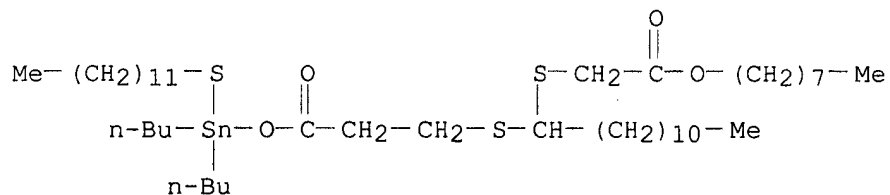


RL: RCT (Reactant)

(reaction of, with dibutyltin oxide and hexanedithiol)

RN 58853-41-1 HCAPLUS

CN 9-Oxa-3,5,11-trithia-10-stannatricosanoic acid, 10,10-dibutyl-8-oxo-4-undecyl-, octyl ester (9CI) (CA INDEX NAME)



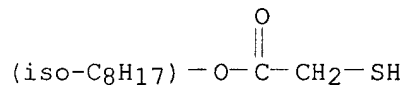
IT 25103-09-7

RL: RCT (Reactant)

(reaction of, with dibutyltin oxide, dodecylaldehyde, hexanedithiol and mercaptopropionic acid)

RN 25103-09-7 HCAPLUS

CN Acetic acid, mercapto-, isooctyl ester (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



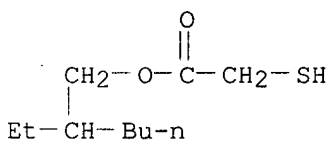
IT 7659-86-1

RL: RCT (Reactant)

(reaction of, with dibutyltin oxide, hexanedithiol, mercaptopropionic acid and silicylaldehyde)

RN 7659-86-1 HCAPLUS

CN Acetic acid, mercapto-, 2-ethylhexyl ester (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



IT 58824-59-2 58824-61-6 58824-62-7

58824-64-9 58828-55-0 58832-17-0

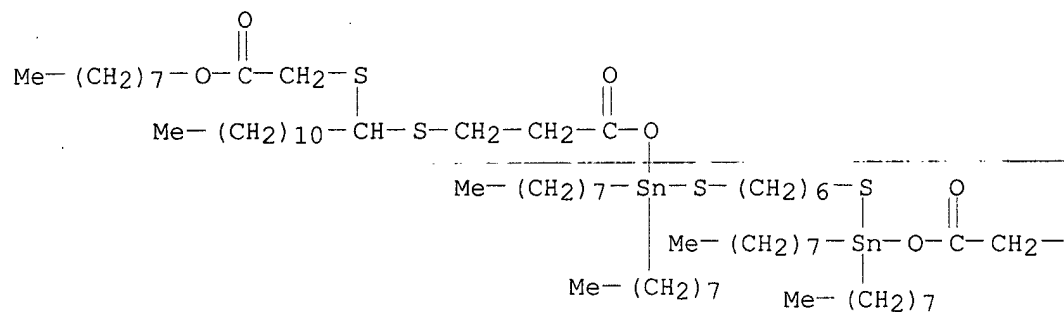
RL: USES (Uses)

(stabilizers, for vinyl chloride polymers)

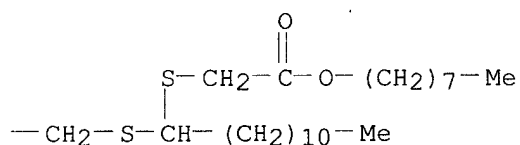
RN 58824-59-2 HCAPLUS

CN 9,20-Dioxa-3,5,11,18,24,26-hexathia-10,19-distannaoctacosanedioic acid, 10,10,19,19-tetraoctyl-8,21-dioxo-4,25-diundecyl-, dioctyl ester (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B

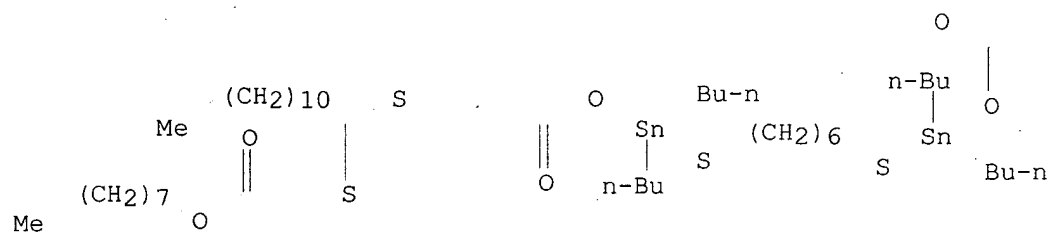


RN 58824-61-6 HCAPLUS

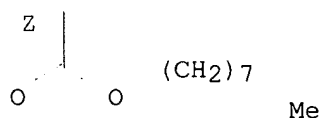
CN 5,16-Dioxa-7,14,20,22-tetrathia-6,15-distannatetracos-2-enedioic acid,  
 6,6,15,15-tetrabutyl-4,17-dioxo-21-undecyl-, dioctyl ester, (Z)- (9CI)  
 (CA INDEX NAME)

Double bond geometry as shown.

PAGE 1-A



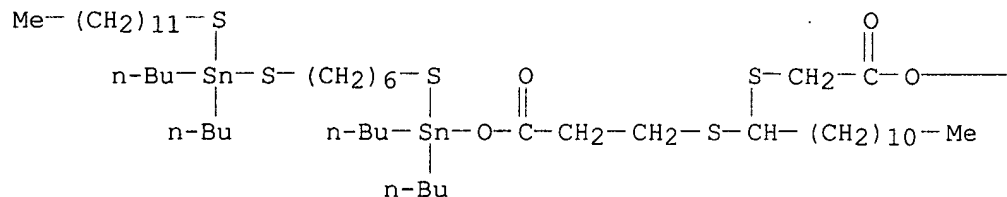
PAGE 1-B



RN 58824-62-7 HCAPLUS

CN 9-Oxa-3,5,11,18,20-pentathia-10,19-distannadotriacontanoic acid,  
10,10,19,19-tetrabutyl-8-oxo-4-undecyl-, octyl ester (9CI) (CA INDEX  
NAME)

PAGE 1-A



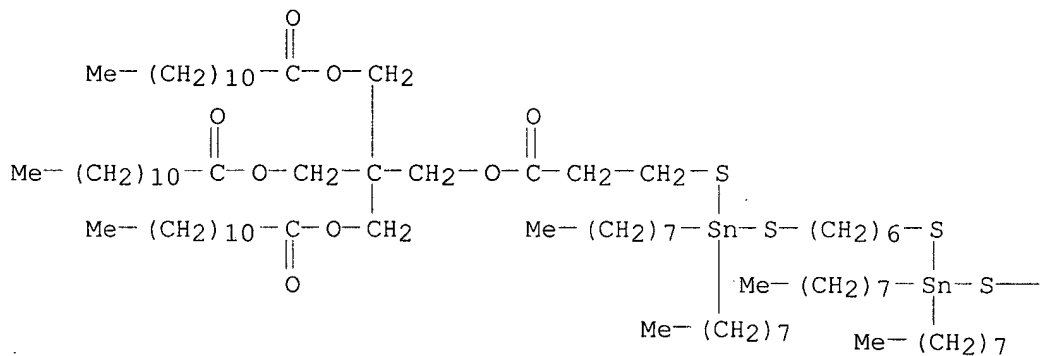
PAGE 1-B

— (CH<sub>2</sub>)<sub>7</sub>—Me

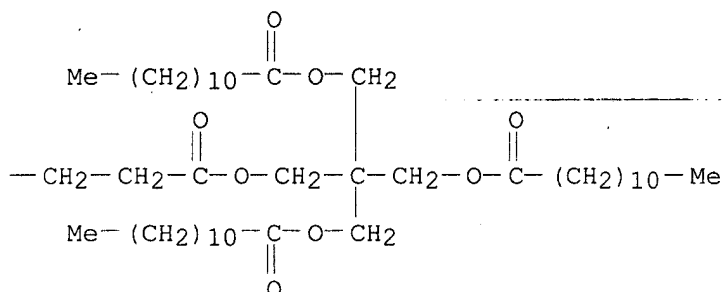
RN 58824-64-9 HCAPLUS

CN 4,6,13,15-Tetrathia-5,14-distannaoctadecanedioic acid,  
5,5,14,14-tetraoctyl-, bis[3-[(1-oxododecyl)oxy]-2,2-bis[[1-  
oxododecyl)oxy]methyl]propyl] ester (9CI) (CA INDEX NAME)

PAGE 1-A



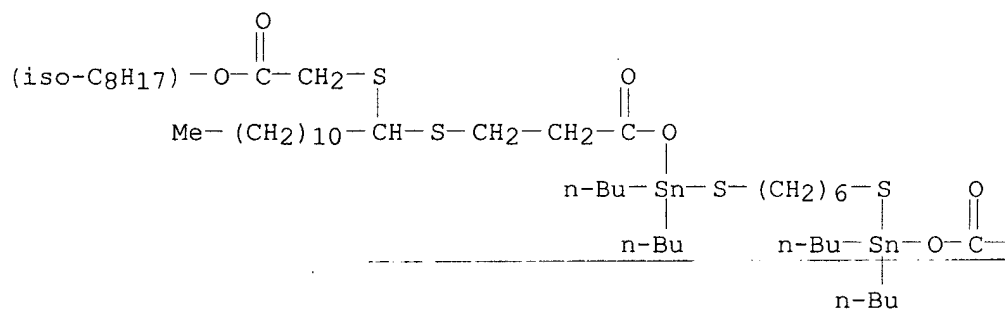
PAGE 1-B



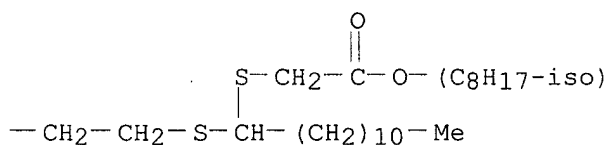
RN 58828-55-0 HCAPLUS

CN 9,20-Dioxa-3,5,11,18,24,26-hexathia-10,19-distannaoctacosanedioic acid,  
 10,10,19,19-tetrabutyl-8,21-dioxo-4,25-diundecyl-, diisooctyl ester (9CI)  
 (CA INDEX NAME)

PAGE 1-A



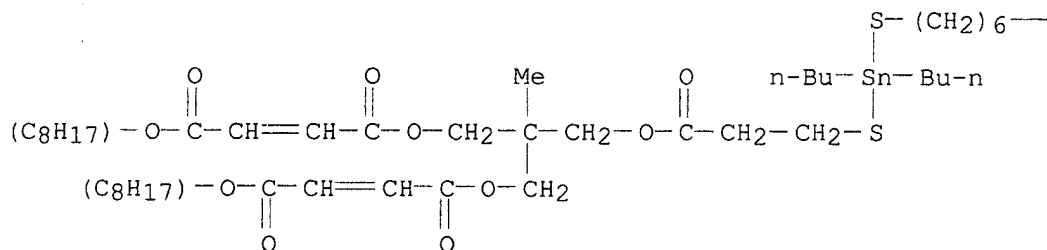
PAGE 1-B



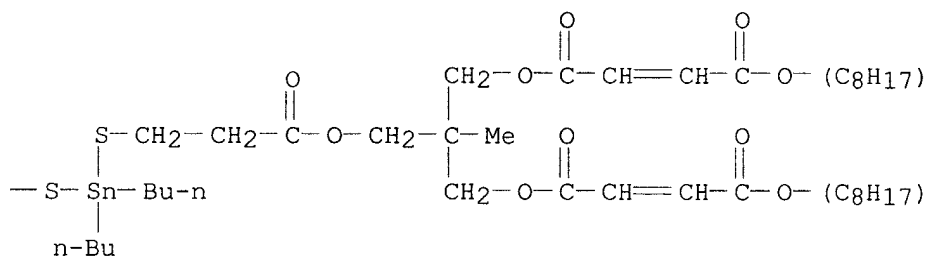
RN 58832-17-0 HCAPLUS

CN 5,9,28,32-Tetraoxa-13,15,22,24-tetrathia-14,23-distannahexatriaconta-2,34-  
 dienedioic acid, 14,14,23,23-tetrabutyl-7,30-bis[[[4-(isooctyloxy)-1,4-  
 dioxo-2-butenyl]oxy]methyl]-7,30-dimethyl-4,10,27,33-tetraoxo-, diisooctyl  
 ester, (all-Z)- (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



L55 ANSWER 20 OF 38 HCAPLUS COPYRIGHT 2002 ACS

AN 1976:136517 HCAPLUS

DN 84:136517

TI Esters and mixtures thereof with organotin compounds useful as polymer stabilizers

IN Coates, Harold; Collins, John Desmond; Siddiqui, Iftikhar H.

PA Albright and Wilson Ltd., UK

SO U.S., 8 pp.

CODEN: USXXAM

DT Patent

LA English

IC C08J

NCL 260045750S

CC 36-2 (Plastics Manufacture and Processing)

Section cross-reference(s): 23, 25

FAN.CNT 2

|      | PATENT NO.     | KIND | DATE     | APPLICATION NO. | DATE         |
|------|----------------|------|----------|-----------------|--------------|
| PI   | US 3933744     | A    | 19760120 | US 1975-586955  | 19750616 <-- |
|      | US 3925246     | A    | 19751209 | US 1974-442874  | 19740215 <-- |
| PRAI | GB 1973-7984   |      | 19730219 |                 |              |
|      | US 1974-442874 |      | 19740215 |                 |              |

AB Diglycerides are prepd. from glycerol mono-.alpha.-stearate (I) [123-94-4] and S-contg. carboxylic acid derivs. and used as costabilizers with org.

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Sn compds. for **PVC** [9002-86-2]. Thus, 0.1 mole each I and .beta.-mercaptopropionic acid [107-96-0] were refluxed in PhMe contg. p-MeC6H4SO3H to give Me(CH2)16CO2CH2CH(OH)CH2O2C(CH2)2SH [53151-76-1], to which were added 0.1 mole each 2-ethylbutyraldehyde [97-96-1] and isooctyl .beta.-mercaptopropionate [30374-01-7] and the mixt. was refluxed to give Me(CH2)7CO2(CH2)2SCH(CH2)2S(CH2)CO2CH2CH(OH)CH2O2C(CH2)Me (II) [58809-61-3]. **PVC** (100 parts) contg. 1.00 part II and 1.33 parts Bu2Sn bis(isooctyl thioglycolate) (III) [25168-24-5] after 10 min at 190.degree. had Gardner color 1 compared to 4-5 for **PVC** contg. only III.

ST **PVC** heat stabilized; glyceride dithio heat stabilizer; thio glyceride heat stabilizer; mercaptopropionate deriv heat stabilizer

IT Heat stabilizers  
(dithio glycerides contg. dialkyltin thioglycolates, for **PVC**)

IT 9002-86-2  
RL: USES (Uses)  
(heat stabilizers for, dithio glycerides and organotin thioglycolates as)

IT 58777-20-1 58777-21-2 58809-60-2 58809-61-3  
RL: MOA (Modifier or additive use); USES (Uses)  
(heat stabilizers, contg. dialkyltin bis(isooctyl thioglycolate), for **PVC**)

IT 25168-24-5 26401-97-8  
RL: MOA (Modifier or additive use); USES (Uses)  
(heat stabilizers, contg. dithio glycerides, for **PVC**)

IT 30374-01-7  
RL: RCT (Reactant)  
(reaction of, with aldehydes and mercaptopropionates)

IT 25103-09-7  
RL: RCT (Reactant)  
(reaction of, with aldehydes and thioglycolates)

IT 53151-76-1  
RL: RCT (Reactant)  
(reaction of, with ethylbutyraldehyde and isooctyl mercaptopropionate)

IT 107-96-0  
RL: RCT (Reactant)  
(reaction of, with glycerol stearate)

IT 123-94-4  
RL: RCT (Reactant)  
(reaction of, with mercaptoalkanoates)

IT 97-96-1 123-11-5  
RL: RCT (Reactant)  
(reaction of, with mercaptopropionates)

IT 112-54-9  
RL: RCT (Reactant)  
(reaction of, with thioglycolates)

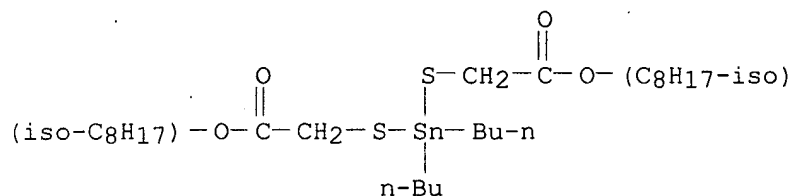
IT 68-11-1, reactions  
RL: RCT (Reactant)  
(with aldehydes and mercaptans and with glycerol stearate)

IT 90-02-8, reactions  
RL: RCT (Reactant)  
(with thioglycolates)

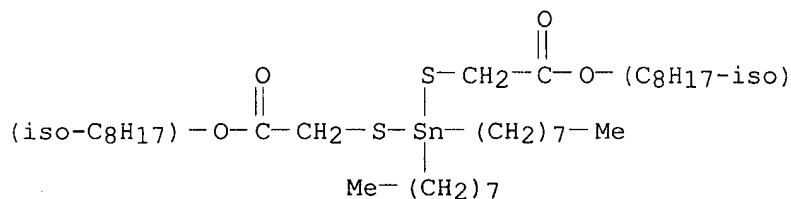
IT 25168-24-5 26401-97-8  
RL: MOA (Modifier or additive use); USES (Uses)  
(heat stabilizers, contg. dithio glycerides, for **PVC**)

RN 25168-24-5 HCAPLUS

CN Acetic acid, 2,2'-[(dibutylstannylene)bis(thio)]bis-, diisooctyl ester (9CI) (CA INDEX NAME)



RN 26401-97-8 HCAPLUS

CN Acetic acid, 2,2'-[(dioctylstannylene)bis(thio)]bis-, diisooctyl ester  
(9CI) (CA INDEX NAME)

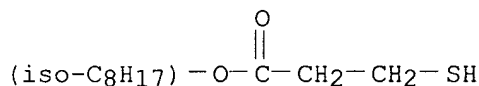
IT 30374-01-7

RL: RCT (Reactant)

(reaction of, with aldehydes and mercaptopropionates)

RN 30374-01-7 HCAPLUS

CN Propanoic acid, 3-mercapto-, isooctyl ester (9CI) (CA INDEX NAME)



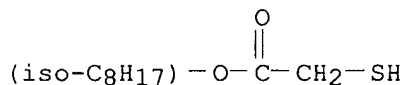
IT 25103-09-7

RL: RCT (Reactant)

(reaction of, with aldehydes and thioglycolates)

RN 25103-09-7 HCAPLUS

CN Acetic acid, mercapto-, isooctyl ester (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



L55 ANSWER 21 OF 38 HCAPLUS COPYRIGHT 2002 ACS

AN 1976:122039 HCAPLUS

DN 84:122039

TI Dialkyltin S,O-.beta.-mercaptopropionate

IN Ittsukaichi, Yoshitoshi; Kawai, Masahiko; Kondo, Tetsuya

PA Sankyo Organic Chemicals Co., Ltd., Japan

SO Japan. Kokai, 5 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC C07F

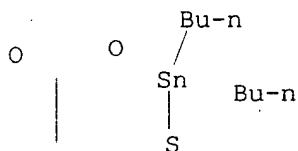
*Not reverse*

CC 29-8 (Organometallic and Organometalloidal Compounds)

Section cross-reference(s): 36

FAN.CNT 1

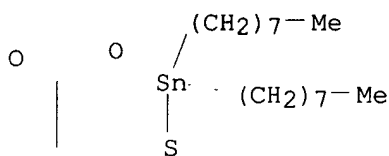
|    | PATENT NO.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | KIND | DATE     | APPLICATION NO. | DATE     |
|----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|----------|-----------------|----------|
| PI | JP 50112323                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | A2   | 19750903 | JP 1974-20602   | 19740222 |
|    | JP 56023432                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | B4   | 19810530 |                 |          |
| AB | Dialkyltin oxide R <sub>1</sub> R <sub>2</sub> SnO (R <sub>1</sub> , R <sub>2</sub> = C <sub>1</sub> -12 alkyl) (1 mole) and 1 mole .beta.-mercaptopropionate HSCH <sub>2</sub> CH <sub>2</sub> CO <sub>2</sub> R <sub>3</sub> (R <sub>3</sub> = mono- or trihydric alc. group) was heated in the presence of water and water-sol. solvent and small amt. of HSCH <sub>2</sub> CH <sub>2</sub> CO <sub>2</sub> H was mixed to crystallize dialkyltin S,O-.beta.-mercaptopropionate (I). I is a stabilizer for poly(vinyl chloride) resin. Thus, 2 moles Bu <sub>2</sub> SnO, 2 moles HSCH <sub>2</sub> CH <sub>2</sub> CO <sub>2</sub> Me and PhMe was heated to 110-degree. and 20 g H <sub>2</sub> O added with removal of MeOH, H <sub>2</sub> O and PhMe to give 503 g I (alkyl = Bu). Similarly prep. were I (alkyl = Me, octyl). |      |          |                 |          |
| ST | polyvinyl chloride stabilizer; dialkyltin mercaptopropionate; methyltin mercaptopropionate; butyltin mercaptopropionate; octyltin mercaptopropionate; dimethyltin mercaptopropionate; dibutyltin mercaptopropionate; dioctyltin mercaptopropionate; tin alkyl mercaptopropionate                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |      |          |                 |          |
| IT | Stabilizing agents<br>(dialkyltin S,O-3-mercaptopropionates, for poly(vinyl chloride) resins)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |      |          |                 |          |
| IT | 78-06-8P 3033-29-2P 32673-05-5P<br>RL: SPN (Synthetic preparation); PREP (Preparation)<br>(prepn. of, for stabilizer for poly(vinyl chloride) resin)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |      |          |                 |          |
| IT | 818-08-6 870-08-6 2273-45-2<br>RL: RCT (Reactant)<br>(reaction of, with 3-mercaptopropionates)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |      |          |                 |          |
| IT | 2935-90-2<br>RL: RCT (Reactant)<br>(reaction of, with dialkyltin oxides)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |      |          |                 |          |
| IT | 78-06-8P 3033-29-2P 32673-05-5P<br>RL: SPN (Synthetic preparation); PREP (Preparation)<br>(prepn. of, for stabilizer for poly(vinyl chloride) resin)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |      |          |                 |          |
| RN | 78-06-8 HCAPLUS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |      |          |                 |          |
| CN | 6H-1,3,2-Oxathiastannin-6-one, 2,2-dibutyldihydro- (7CI, 8CI, 9CI) (CA INDEX NAME)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |      |          |                 |          |



RN 3033-29-2 HCAPLUS

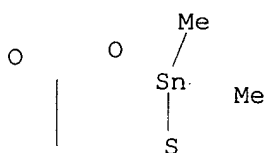
CN 6H-1,3,2-Oxathiastannin-6-one, dihydro-2,2-dioctyl- (7CI, 8CI, 9CI) (CA INDEX NAME)





RN 32673-05-5 HCAPLUS

CN 6H-1,3,2-Oxathiastannin-6-one, dihydro-2,2-dimethyl- (9CI) (CA INDEX NAME)



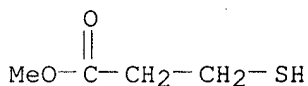
IT 2935-90-2

RL: RCT (Reactant)

(reaction of, with dialkyltin oxides)

RN 2935-90-2 HCAPLUS

CN Propanoic acid, 3-mercapto-, methyl ester (9CI) (CA INDEX NAME)



L55 ANSWER 22 OF 38 HCAPLUS COPYRIGHT 2002 ACS

AN 1976:44363 HCAPLUS

DN 84:44363

TI Organotin mercaptides

IN Molt, Kenneth R.

PA Cincinnati Milacron Chemicals, Inc., USA

SO Ger. Offen., 47 pp.

CODEN: GWXXBX

DT Patent

LA German

IC C07F

CC 29-8 (Organometallic and Organometalloidal Compounds)

Section cross-reference(s): 35

FAN.CNT 4

|      | PATENT NO.     | KIND | DATE     | APPLICATION NO. | DATE         |
|------|----------------|------|----------|-----------------|--------------|
| PI   | DE 2503554     | A1   | 19750911 | DE 1975-2503554 | 19750129     |
|      | DE 2503554     | B2   | 19770818 |                 |              |
|      | US 3970678     | A    | 19760720 | US 1974-449435  | 19740308 <-- |
|      | US 3931263     | A    | 19760106 | US 1974-479142  | 19740613 <-- |
| PRAI | US 1974-449435 |      | 19740308 |                 |              |
|      | US 1974-479142 |      | 19740613 |                 |              |

AB Approx. 20 methyltin thioethers, e.g., [(C<sub>8</sub>H<sub>17</sub>O<sub>2</sub>CCH<sub>2</sub>S)<sub>2</sub>SnMe]<sub>2</sub>S, MeSn(SCH<sub>2</sub>CO<sub>2</sub>C<sub>8</sub>H<sub>17</sub>)<sub>3</sub>, [(C<sub>7</sub>H<sub>15</sub>CO<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>S)<sub>2</sub>SnMe]<sub>2</sub>S, Me<sub>2</sub>Sn(SCH<sub>2</sub>Ph)SCH<sub>2</sub>CO<sub>2</sub>C<sub>8</sub>H<sub>17</sub>, etc. were prepd. E.g., Me<sub>2</sub>SnCl<sub>2</sub> and Na<sub>2</sub>S gave

Me<sub>2</sub>SnS, which, with ClCH<sub>2</sub>CH<sub>2</sub>O<sub>2</sub>CC<sub>7</sub>H<sub>15</sub>, gave Me<sub>2</sub>SnClSCH<sub>2</sub>CH<sub>2</sub>O<sub>2</sub>CC<sub>7</sub>H<sub>15</sub>. This treated with HSCH<sub>2</sub>CH<sub>2</sub>O<sub>2</sub>CC<sub>7</sub>H<sub>15</sub> gave Me<sub>2</sub>Sn(SCH<sub>2</sub>CH<sub>2</sub>O<sub>2</sub>CC<sub>7</sub>H<sub>15</sub>)<sub>2</sub>. The methyltin thioethers were stabilizers for **polyvinyl** chloride.

ST stannane alkylthio; tin methyl alkylthio; sulfide methyltin; thioether methyltin; polymer stabilizer methyltin thioether; **polyvinyl** chloride stabilizer methyltin thioether

IT Polymers, uses and miscellaneous

RL: USES (Uses)

(stabilizers, alkyltin thioethers, for **polyvinyl** chloride)

IT 26636-01-1P 26896-31-1P 53040-42-9P

57807-81-5P 57807-82-6P 57807-83-7P

57807-84-8P 57807-85-9P 57807-86-0P

57807-87-1P 57807-88-2P 57807-89-3P

57813-59-9P 57813-60-2P 57813-61-3P

57813-62-4P 57813-63-5P 57813-64-6P

57813-65-7P

RL: SPN (Synthetic preparation); PREP (Preparation)

(prepn. of)

IT 4808-30-4 13269-74-4 15666-29-2

33397-79-4

RL: RCT (Reactant)

(reaction with isooctyl chloroacetate)

IT 589-76-4 30753-73-2 57807-80-4

RL: RCT (Reactant)

(reaction with methyltin sulfides)

IT 753-73-1 993-16-8

RL: RCT (Reactant)

(reaction with sodium sulfide)

IT 25103-09-7 57813-59-9

RL: RCT (Reactant)

(reaction with tin chlorides)

IT 9002-86-2

RL: PROC (Process)

(stabilization of, with alkyltin thioethers)

IT 26636-01-1P 26896-31-1P 53040-42-9P

57807-81-5P 57807-82-6P 57807-83-7P

57807-84-8P 57807-85-9P 57807-86-0P

57807-87-1P 57807-88-2P 57807-89-3P

57813-59-9P 57813-60-2P 57813-61-3P

57813-62-4P 57813-63-5P 57813-64-6P

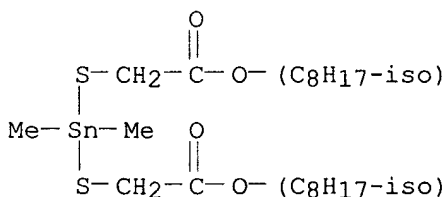
57813-65-7P

RL: SPN (Synthetic preparation); PREP (Preparation)

(prepn. of)

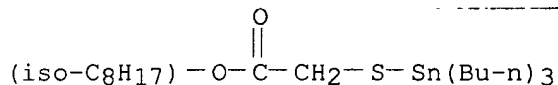
RN 26636-01-1 HCAPLUS

CN Acetic acid, 2,2'-[(dimethylstannylene)bis(thio)]bis-, diisooctyl ester (9CI) (CA INDEX NAME)



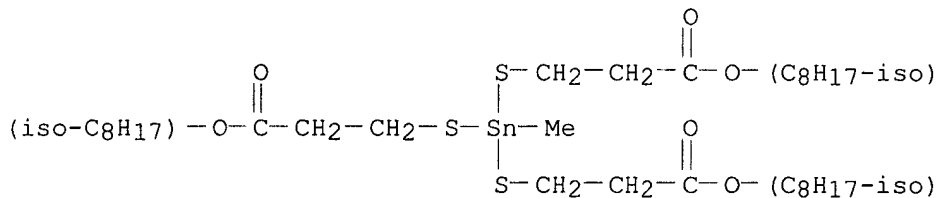
RN 26896-31-1 HCAPLUS

CN Acetic acid, [(tributylstannyl)thio]-, isooctyl ester (8CI, 9CI) (CA INDEX NAME)



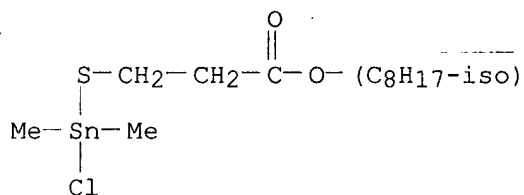
RN 53040-42-9 HCAPLUS

CN Propanoic acid, 3,3',3''-[(methylstannylidyne)tris(thio)]tris-, triisooctyl ester (9CI) (CA INDEX NAME)



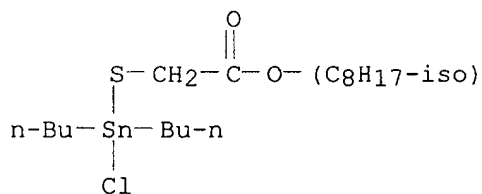
RN 57807-81-5 HCAPLUS

CN Propanoic acid, 3-[(chlorodimethylstannyl)thio]-, isooctyl ester (9CI) (CA INDEX NAME)



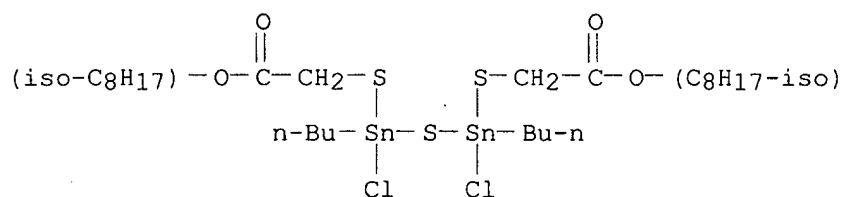
RN 57807-82-6 HCAPLUS

CN Acetic acid, [(dibutylchlorostannyl)thio]-, isooctyl ester (9CI) (CA INDEX NAME)



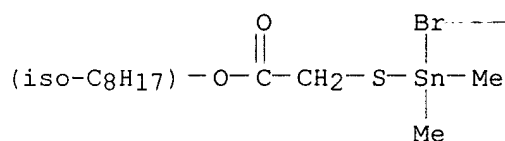
RN 57807-83-7 HCAPLUS

CN Acetic acid, 2,2'-[(1,3-dibutyl-1,3-dichloro-1,3-distannathianediyl)bis(thio)]bis-, diisooctyl ester (9CI) (CA INDEX NAME)



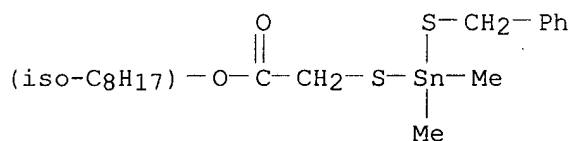
RN 57807-84-8 HCAPLUS

CN Acetic acid, [(bromodimethylstannyl)thio]-, isooctyl ester (9CI) (CA INDEX NAME)



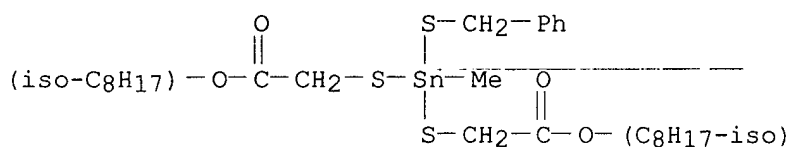
RN 57807-85-9 HCAPLUS

CN Acetic acid, [[dimethyl[(phenylmethyl)thio]stannyl]thio]-, isooctyl ester (9CI) (CA INDEX NAME)



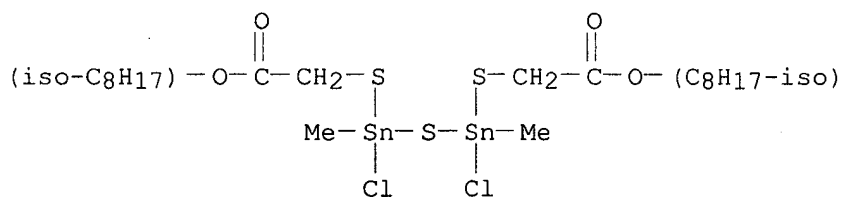
RN 57807-86-0 HCAPLUS

CN Acetic acid, 2,2'-[[methyl[(phenylmethyl)thio]stannylene]bis(thio)]bis-, diisooctyl ester (9CI) (CA INDEX NAME)



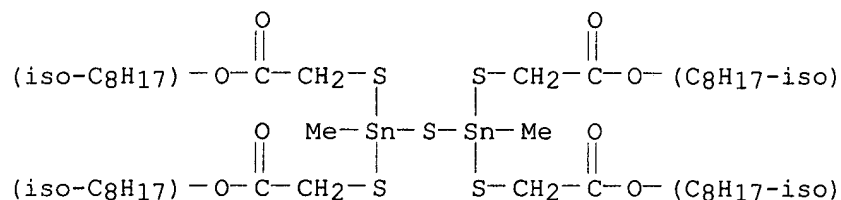
RN 57807-87-1 HCAPLUS

CN Acetic acid, 2,2'-[(1,3-dichloro-1,3-dimethyl-1,3-distannathianediyl)bis(thio)]bis-, diisooctyl ester (9CI) (CA INDEX NAME)



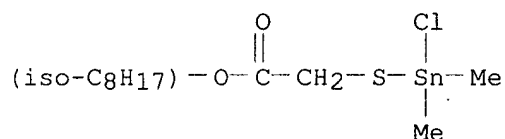
RN 57807-88-2 HCAPLUS

CN Acetic acid, 2,2',2'',2'''-[(1,3-dimethyl-1,3-distannathianediylidene)tetrakis(thio)]tetrakis-, tetraisooctyl ester (9CI) (CA INDEX NAME)



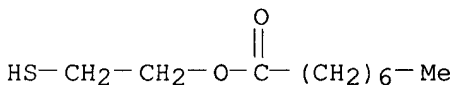
RN 57807-89-3 HCAPLUS

Acetic acid, [(chlorodimethylstannyl)thio]-, isooctyl ester (9CI) (CA INDEX NAME)



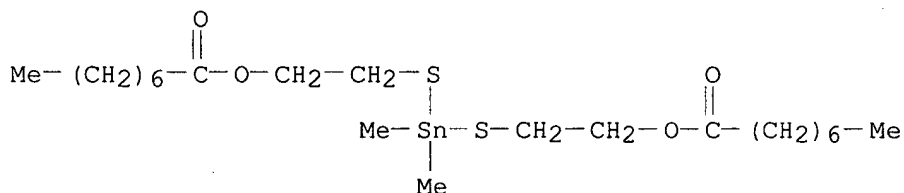
RN 57813-59-9 HCAPLUS

|    |                                            |                 |
|----|--------------------------------------------|-----------------|
| CN | Octanoic acid, 2-mercaptoethyl ester (9CI) | (CA INDEX NAME) |
|----|--------------------------------------------|-----------------|



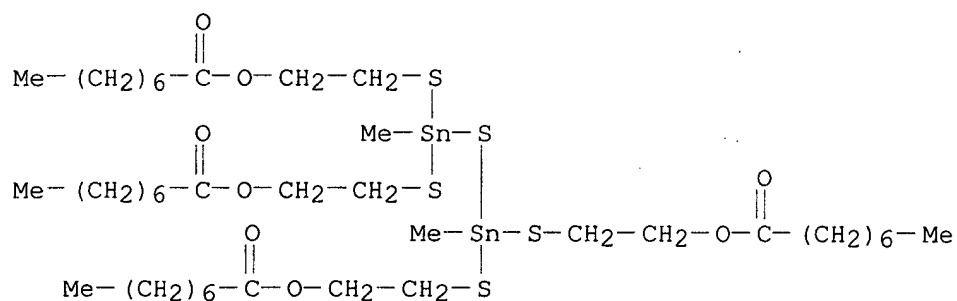
RN 57813-60-2 HCAPLUS

CN Octanoic acid, (dimethylstannylene)bis(thio-2,1-ethanediyl) ester (9CI)  
(CA INDEX NAME)

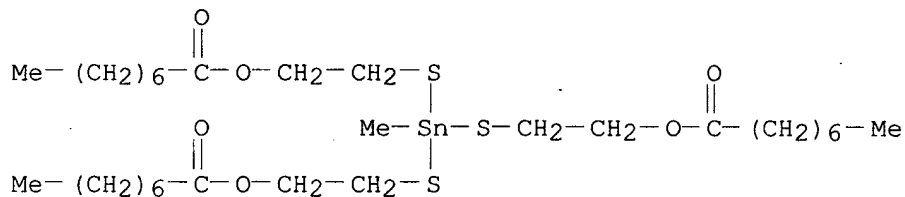


RN 57813-61-3 HCAPLUS

CN Octanoic acid, (1,3-dimethyl-1,3-distannathianediylidene)tetrakis(thio-2,1-ethanediyl) ester (9CI) (CA INDEX NAME)

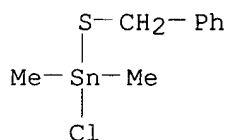


RN 57813-62-4 HCAPLUS

CN Octanoic acid, (methylstannylidyne)tris(thio-2,1-ethanediyl) ester (9CI)  
(CA INDEX NAME)

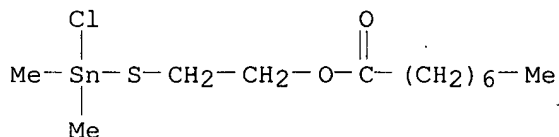
RN 57813-63-5 HCAPLUS

CN Stannane, chlorodimethyl[(phenylmethyl)thio]- (9CI) (CA INDEX NAME)



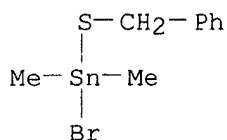
RN 57813-64-6 HCAPLUS

CN Octanoic acid, 2-[(chlorodimethylstannyl)thio]ethyl ester (9CI) (CA INDEX NAME)



RN 57813-65-7 HCAPLUS

CN Stannane, bromodimethyl[(phenylmethyl)thio]- (9CI) (CA INDEX NAME)



IT 4808-30-4 13269-74-4 15666-29-2

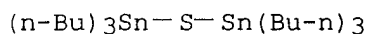
33397-79-4

RL: RCT (Reactant)

(reaction with isooctyl chloroacetate)

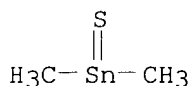
RN 4808-30-4 HCAPLUS

CN Distannathiane, hexabutyl- (9CI) (CA INDEX NAME)



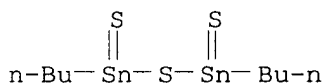
RN 13269-74-4 HCAPLUS

CN Stannane, dimethylthioxo- (8CI, 9CI) (CA INDEX NAME)



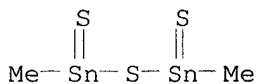
RN 15666-29-2 HCAPLUS

CN Distannathiane, dibutyldithioxo- (9CI) (CA INDEX NAME)



RN 33397-79-4 HCAPLUS

CN Distannathiane, dimethyldithioxo- (9CI) (CA INDEX NAME)



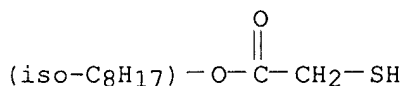
IT 25103-09-7 57813-59-9

RL: RCT (Reactant)

(reaction with tin chlorides)

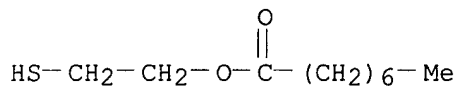
RN 25103-09-7 HCAPLUS

CN Acetic acid, mercapto-, isooctyl ester (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



RN 57813-59-9 HCAPLUS

CN Octanoic acid, 2-mercaptoethyl ester (9CI) (CA INDEX NAME)



L55 ANSWER 23 OF 38 HCAPLUS COPYRIGHT 2002 ACS  
 AN 1976:18407 HCAPLUS  
 DN 84:18407  
 TI Monoalkyltin heat stabilizers for poly(vinyl chloride)  
 IN Abeler, Gerd  
 PA Ciba-Geigy A.-G., Switz.  
 SO Ger. Offen., 18 pp.  
 CODEN: GWXXBX  
 DT **Patent**  
 LA German  
 IC C07F; C08L; C08K  
 CC 36-6 (Plastics Manufacture and Processing)  
 Section cross-reference(s): 29

FAN.CNT 3

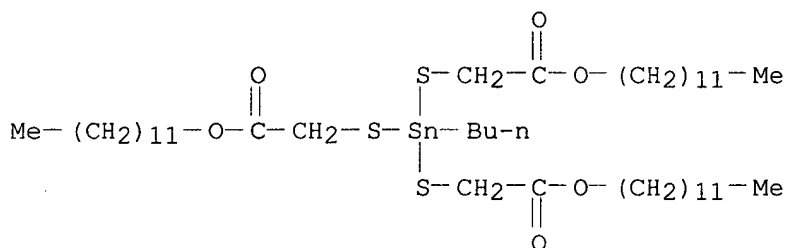
|      | PATENT NO.    | KIND | DATE     | APPLICATION NO. | DATE     |
|------|---------------|------|----------|-----------------|----------|
| PI   | DE 2501331    | A1   | 19750724 | DE 1975-2501331 | 19750115 |
|      | CH 588980     | A    | 19770630 | CH 1974-620     | 19740117 |
|      | SE 7415001    | A    | 19750718 | SE 1974-15001   | 19741129 |
|      | SE 396398     | B    | 19770919 |                 |          |
|      | SE 396398     | C    | 19790830 |                 |          |
|      | AU 7476819    | A1   | 19760624 | AU 1974-76819   | 19741224 |
|      | BR 7500265    | A    | 19751104 | BR 1975-265     | 19750115 |
|      | DD 117686     | C    | 19760120 | DD 1975-183644  | 19750115 |
|      | GB 1494771    | A    | 19771214 | GB 1975-1673    | 19750115 |
|      | DE 2559820    | B1   | 19790201 | DE 1975-2559820 | 19750115 |
|      | DE 2559820    | C3   | 19820422 |                 |          |
|      | DE 2560037    | C2   | 19840126 | DE 1975-2560037 | 19750115 |
|      | BE 824427     | A1   | 19750716 | BE 1975-152412  | 19750116 |
|      | NL 7500528    | A    | 19750721 | NL 1975-528     | 19750116 |
|      | NL 189858     | B    | 19930316 |                 |          |
|      | NL 189858     | C    | 19930816 |                 |          |
|      | FR 2273037    | A1   | 19751226 | FR 1975-1249    | 19750116 |
|      | ZA 7500309    | A    | 19760128 | ZA 1975-309     | 19750116 |
|      | AT 7500307    | A    | 19760715 | AT 1975-307     | 19750116 |
|      | AT 335745     | B    | 19770325 |                 |          |
|      | ES 433846     | A1   | 19761101 | ES 1975-433846  | 19750116 |
|      | IT 1028414    | A    | 19790130 | IT 1975-19333   | 19750116 |
|      | JP 50107041   | A2   | 19750823 | JP 1975-7678    | 19750117 |
|      | JP 57061052   | B4   | 19821222 |                 |          |
| PRAI | CH 1974-620   |      | 19740117 |                 |          |
|      | CH 1974-14308 |      | 19741025 |                 |          |

AB The compds.  $\text{R1Sn}[\text{S}(\text{CH}_2)_n\text{CO}_2\text{R}_2]_3$  ( $\text{R1} = \text{C1-12 alkyl, vinyl, allyl, Ph, PhCH}_2$ ;  $\text{R}_2 = \text{C10-20 alkyl}$ ;  $n = 1-5$ ) are heat stabilizers for vinyl chloride polymers effective at low concns. (0.2-5 phr). Thus, heating  $\text{MeSnCl}_3$  [993-16-8] 12.0,  $\text{HSCH}_2\text{CO}_2\text{C14H}_29$  [57414-16-1] 43.9, and  $\text{NaHCO}_3$  15 g gives colorless, oily  $\text{MeSn}(\text{SCH}_2\text{CO}_2\text{C14H}_29)_3$  (I) [57414-17-2]. A mixt. of PVC [9002-86-2] 100, montan wax 0.5, monoglyceride 1.0, and I 1.0 part calendered at 190.degree. requires 25 min for discoloration to bright brownish-yellow.

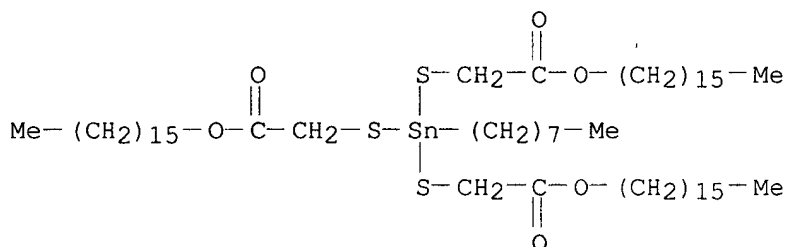
ST heat stabilizer PVC; tin mercaptide stabilizer; thioglycolate



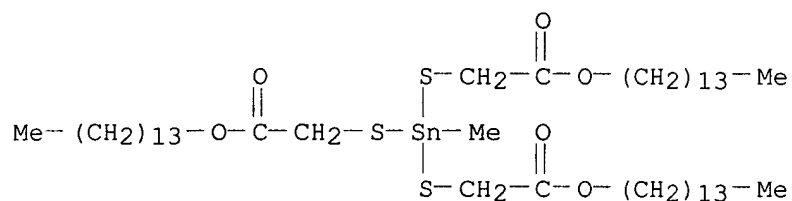
- reaction chlorostannane; stannane trichloromethyl reaction thioglycolate
- IT Heat stabilizers  
(tin mercaptides, for PVC)
- IT 9002-86-2  
RL: USES (Uses)  
(heat stabilizers for, tin mercaptides as)
- IT 26292-98-8 57414-15-0 57414-17-2  
57414-18-3 57414-19-4 57450-74-5  
RL: MOA (Modifier or additive use); USES (Uses)  
(heat stabilizers, for PVC)
- IT 3746-39-2 10220-46-9 22811-02-5  
57414-16-1 57417-85-3 57417-86-4  
RL: RCT (Reactant)  
(reaction of, with alkyltin compds.)
- IT 818-08-6 870-08-6 993-16-8 2273-43-0 26738-80-7 51590-67-1  
RL: RCT (Reactant)  
(reaction of, with thioglycolates)
- IT 26292-98-8 57414-15-0 57414-17-2  
57414-18-3 57414-19-4 57450-74-5  
RL: MOA (Modifier or additive use); USES (Uses)  
(heat stabilizers, for PVC)
- RN 26292-98-8 HCAPLUS
- CN 8-Oxa-3,5-dithia-4-stannaeicosanoic acid, 4-butyl-4-[[2-(dodecyloxy)-2-oxoethyl]thio]-7-oxo-, dodecyl ester (9CI) (CA INDEX NAME)



- RN 57414-15-0 HCAPLUS
- CN 8-Oxa-3,5-dithia-4-stannatetracosanoic acid, 4-[[2-(hexadecyloxy)-2-oxoethyl]thio]-4-octyl-7-oxo-, hexadecyl ester (9CI) (CA INDEX NAME)

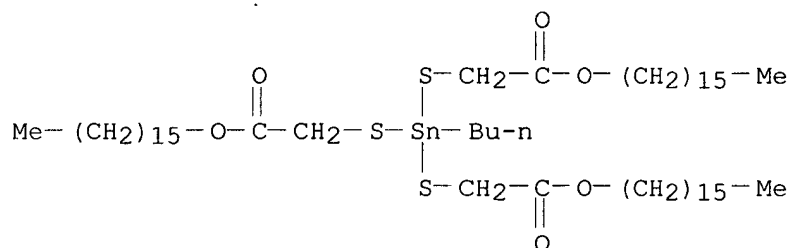


- RN 57414-17-2 HCAPLUS
- CN 8-Oxa-3,5-dithia-4-stannadocosanoic acid, 4-methyl-7-oxo-4-[[2-oxo-2-(tetradecyloxy)ethyl]thio]-, tetradecyl ester (9CI) (CA INDEX NAME)



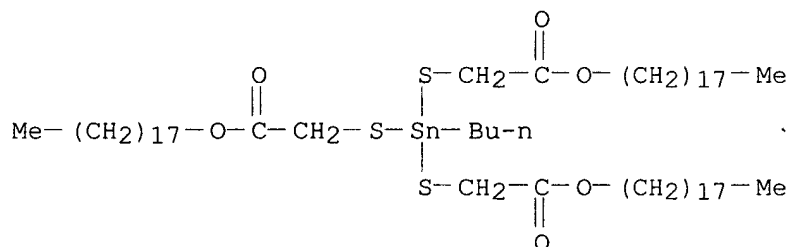
RN 57414-18-3 HCAPLUS

CN 8-Oxa-3,5-dithia-4-stannatetracosanoic acid, 4-butyl-4-[[2-(hexadecyloxy)-2-oxoethyl]thio]-7-oxo-, hexadecyl ester (9CI) (CA INDEX NAME)



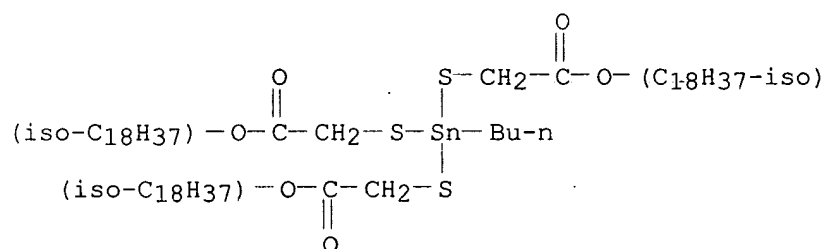
RN 57414-19-4 HCAPLUS

CN 8-Oxa-3,5-dithia-4-stannahehexacosanoic acid, 4-butyl-4-[[2-(octadecyloxy)-2-oxoethyl]thio]-7-oxo-, octadecyl ester (9CI) (CA INDEX NAME)



RN 57450-74-5 HCAPLUS

CN Acetic acid, 2,2'-[[butyl[[2-(isooctadecyloxy)-2-oxoethyl]thio]stannylene]bis(thio)]bis-, diisooctadecyl ester (9CI) (CA INDEX NAME)



IT 3746-39-2 10220-46-9 22811-02-5

KATHLEEN FULLER EIC 1700/LAW LIBRARY 308-4290

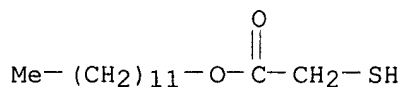
57414-16-1 57417-85-3 57417-86-4

RL: RCT (Reactant)

(reaction of, with alkyltin compds.)

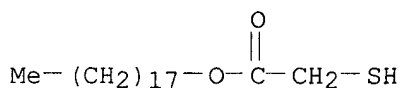
RN 3746-39-2 HCAPLUS

CN Acetic acid, mercapto-, dodecyl ester (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



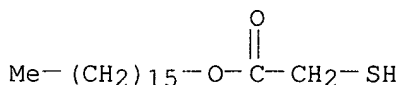
RN 10220-46-9 HCAPLUS

CN Acetic acid, mercapto-, octadecyl ester (7CI, 8CI, 9CI) (CA INDEX NAME)



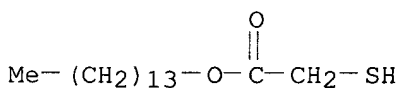
RN 22811-02-5 HCAPLUS

CN Acetic acid, mercapto-, hexadecyl ester (8CI, 9CI) (CA INDEX NAME)



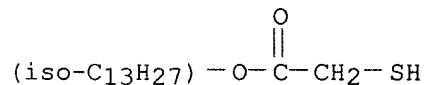
RN 57414-16-1 HCAPLUS

CN Acetic acid, mercapto-, tetradecyl ester (9CI) (CA INDEX NAME)



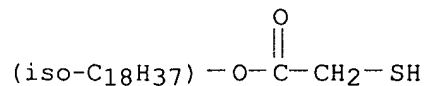
RN 57417-85-3 HCAPLUS

CN Acetic acid, mercapto-, isotridecyl ester (9CI) (CA INDEX NAME)



RN 57417-86-4 HCAPLUS

CN Acetic acid, mercapto-, iso-octadecyl ester (9CI) (CA INDEX NAME)



AN 1976:5931 HCAPLUS  
 DN 84:5931  
 TI Halogen-containing resin **compositions**  
 IN Shinkawa, Hirotochi  
 PA Kyodo Yakuhin Co., Ltd., Japan  
 SO Japan. Kokai, 10 pp.  
 CODEN: JKXXAF  
 DT **Patent**  
 LA Japanese  
 IC C08L; C08K; C07C; C07F  
 CC 36-6 (Plastics Manufacture and Processing)  
 Section cross-reference(s): 29

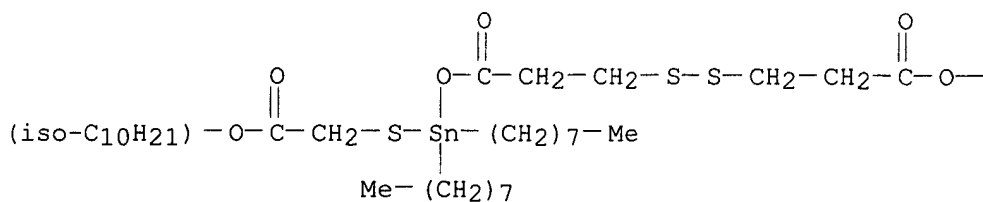
FAN.CNT 1

|    | PATENT NO.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | KIND | DATE     | APPLICATION NO. | DATE     |
|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|----------|-----------------|----------|
| PI | JP 50094054                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | A2   | 19750726 | JP 1973-134787  | 19731130 |
|    | JP 53037905                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | B4   | 19781012 |                 |          |
| AB | Halogen-contg. resin <b>compns.</b> were stabilized by organotin compds. [Rn(R1O2CZS)mSn]2Z1 (I, R = C4-12 alkyl; R1 = C1-18 alkyl, cycloalkyl, aryl, phenylalkyl, R2OZ2; R2 = C1-4 alkyl, Ph; Z = C1-2 alkylene; Z1 = (di)thiodipropionic acid residue; Z2 = C2-4 alkylene; m, n = 1,2; n + m = 3]. For example, isooctyl thioglycolate [25103-09-7] in toluene was treated with dioctyltin oxide [870-08-6] and then thiodipropionic acid [111-17-1] to give I(R = octyl, R1 = isooctyl, Z = CH2, Z1 = O2CCH2CH2SCH2CH2CO2, n = 2) (II) [57238-51-4]; also prepd. were, e.g., I (R = octyl, R1 = isooctyl, Z = CH2CH2, Z1 = O2CCH2CH2SCH2CH2CO2, n = 2) [57238-55-8], I(R = Bu, R1 = isooctyl, Z = CH2, Z1 = O2CCH2CH2SCH2CH2CO2, m = 2) [57238-54-7], I(R = octyl, R1 = Bu, Z = CH2, Z1 = O2CCH2CH2SCH2CH2CO2, n = 2) [57242-94-1], and I (R = octyl, R1 = isodecyl, Z = CH2, Z1 = O2CCH2CH2SCH2CH2CO2, n = 2) [57238-37-6]. PVC [9002-86-2] contg. 2.5 phr II had better heat resistance, lubricity, and transparency than that contg. R2Sn(SZCO2R1)2(R = octyl, R1 = isooctyl, Z = CH2; octyl, 3-methoxybutyl, (CH2)2; octyl, isooctyl, (CH2)2; Bu, isooctyl, CH2]. |      |          |                 |          |
| ST | organotin heat stabilizer PVC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |      |          |                 |          |
| IT | Heat stabilizers                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |      |          |                 |          |
|    | (organotin compds. for PVC)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |      |          |                 |          |
| IT | 9002-86-2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |      |          |                 |          |
|    | RL: USES (Uses)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |      |          |                 |          |
|    | (heat stabilizers for, organotin compds. as)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |      |          |                 |          |
| IT | 57238-37-6 57238-51-4 57238-54-7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |      |          |                 |          |
|    | 57238-55-8 57242-94-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |      |          |                 |          |
|    | RL: MOA (Modifier or additive use); USES (Uses)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |      |          |                 |          |
|    | (heat stabilizers, for PVC)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |      |          |                 |          |
| IT | 25103-09-7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |      |          |                 |          |
|    | RL: RCT (Reactant)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |      |          |                 |          |
|    | (reaction of, with dioctyl tin oxide and thiodipropionic acid)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |      |          |                 |          |
| IT | 111-17-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |      |          |                 |          |
|    | RL: RCT (Reactant)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |      |          |                 |          |
|    | (reaction of, with isooctyl thioglycolate and dioctyltin oxide)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |      |          |                 |          |
| IT | 870-08-6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |      |          |                 |          |
|    | RL: RCT (Reactant)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |      |          |                 |          |
|    | (reaction of, with isooctyl thioglycolate and thiodipropionic acid)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |      |          |                 |          |
| IT | 57238-37-6 57238-51-4 57238-54-7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |      |          |                 |          |
|    | 57238-55-8 57242-94-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |      |          |                 |          |
|    | RL: MOA (Modifier or additive use); USES (Uses)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |      |          |                 |          |
|    | (heat stabilizers, for PVC)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |      |          |                 |          |
| RN | 57238-37-6 HCAPLUS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |      |          |                 |          |
| CN | 5,14-Dioxa-3,9,10,16-tetrathia-4,15-distannaoctadecanedioic acid,                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |      |          |                 |          |

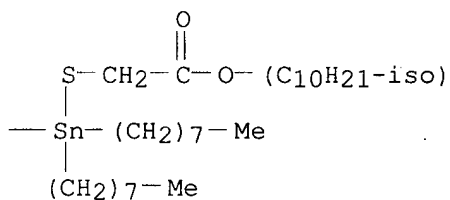
*Not name*

4,4,15,15-tetraoctyl-6,13-dioxo-, diisodecyl ester (9CI) (CA INDEX NAME)

PAGE 1-A



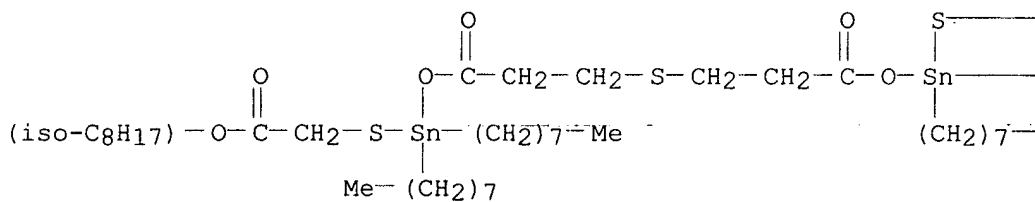
PAGE 1-B



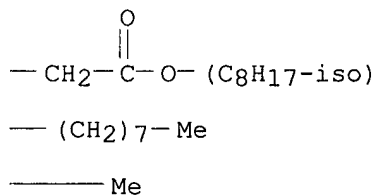
RN 57238-51-4 HCAPLUS

CN 5,13-Dioxa-3,9,15-trithia-4,14-distannaheptadecanedioic acid,  
4,4,14,14-tetraoctyl-6,12-dioxo-, diisooctyl ester (9CI) (CA INDEX NAME)

PAGE 1-A



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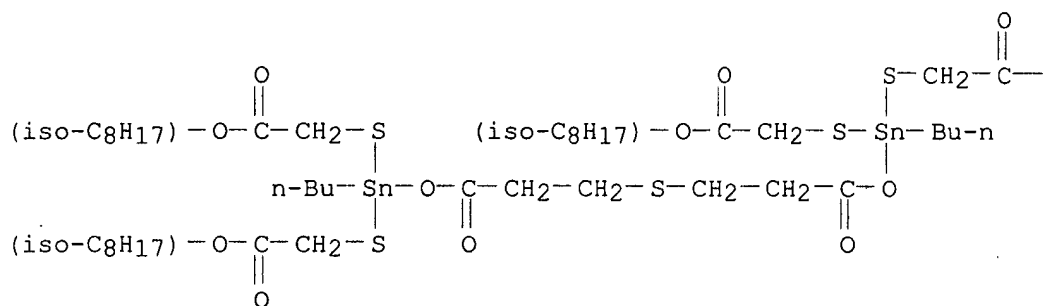


RN 57238-54-7 HCAPLUS

CN 5,13-Dioxa-3,9,15-trithia-4,14-distannaheptadecanedioic acid,  
4,14-dibutyl-4,14-bis[[2-(isooctyloxy)-2-oxoethyl]thio]-6,12-dioxo-,

diisooctyl ester (9CI) (CA INDEX NAME)

PAGE 1-A.



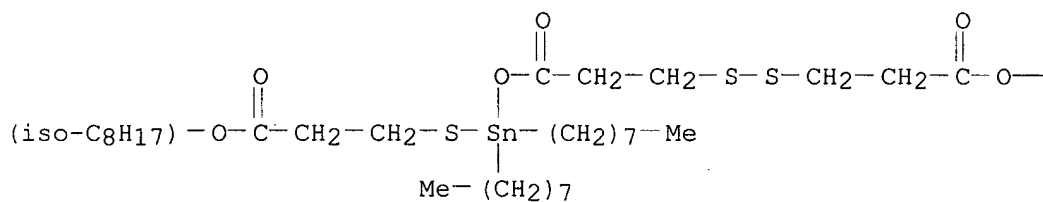
PAGE 1-B

$$-\text{O}- (\text{C}_8\text{H}_{17}\text{-iso})$$

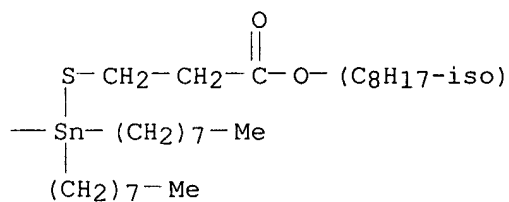
RN 57238-55-8 HCAPLUS

6,15-Dioxa-4,10,11,17-tetrathia-5,16-distannaeicosanedioic acid,  
5,5,16,16-tetraoctyl-7,14-dioxo-, diisooctyl ester (9CI) (CA INDEX NAME)

PAGE 1-A



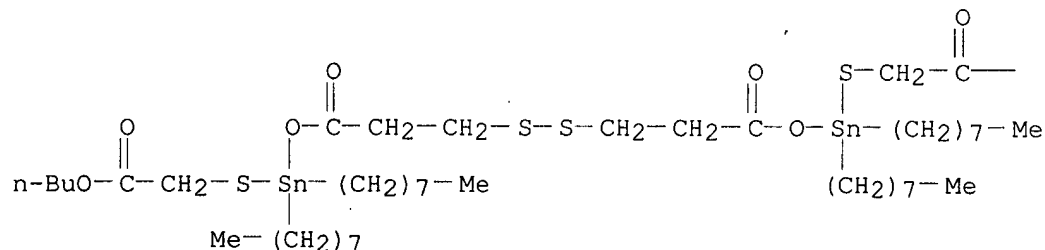
PAGE 1-B



RN 57242-94-1 HCAPLUS

CN 5,14-Dioxa-3,9,10,16-tetrathia-4,15-distannaooctadecanedioic acid,  
4,4,15,15-tetraoctyl-6,13-dioxo-, dibutyl ester (9CI) (CA INDEX NAME)

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PAGE 1-B

---OBu-n

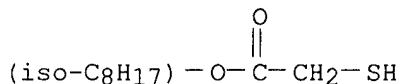
IT 25103-09-7

RL: RCT (Reactant)

(reaction of, with dioctyl tin oxide and thiodipropionic acid)

RN 25103-09-7 HCAPLUS

CN Acetic acid, mercapto-, isooctyl ester (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



L55 ANSWER 25 OF 38 HCAPLUS COPYRIGHT 2002 ACS

AN 1975:548458 HCAPLUS

DN 83:148458

TI Alkyltin polysulfide thioester stabilized composition

IN Kugele, Thomas G.; Bresser, Robert E.

PA Cincinnati Milacron Chemicals Inc., USA

SO U.S., 6 pp. Division of U.S. 3,869,487.

CODEN: USXXAM

DT Patent

LA English

IC C08F

NCL 260045750S

CC 36-6 (Plastics Manufacture and Processing)

FAN.CNT 3

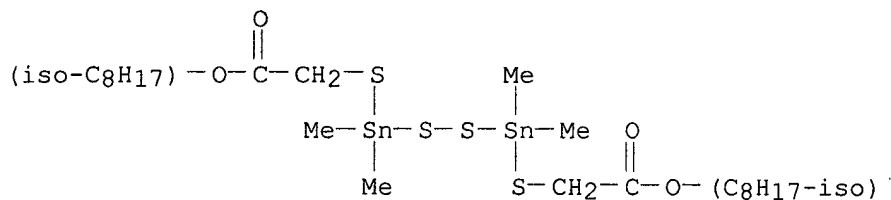
|      | PATENT NO.     | KIND | DATE     | APPLICATION NO. | DATE         |
|------|----------------|------|----------|-----------------|--------------|
| PI   | US 3890277     | A    | 19750617 | US 1974-508713  | 19740923 <-- |
|      | US 3869487     | A    | 19750304 | US 1973-400127  | 19730924 <-- |
| PRAI | US 1973-400127 |      | 19730924 |                 |              |

AB Organotin mercaptocarboxylic acid ester polysulfides, such as bis(methyltin diisooctylthioglycolate) disulfide (I) [55230-73-4], were prepd. and used as stabilizers for PVC [9002-86-2] and other halogen-contg. polymers. Thus, I was prepd. in 100% yield by adding 1 mole isooctyl thioglycolate [25103-09-7] to 0.5 mole MeSnCl<sub>3</sub> [993-16-8] in H<sub>2</sub>O in presence of 1 mole NaOH and treating with a soln. prepd. by heating 0.25 mole Na<sub>2</sub>S and 0.25 mole S in H<sub>2</sub>O. The prepn. and

*Not reverse*

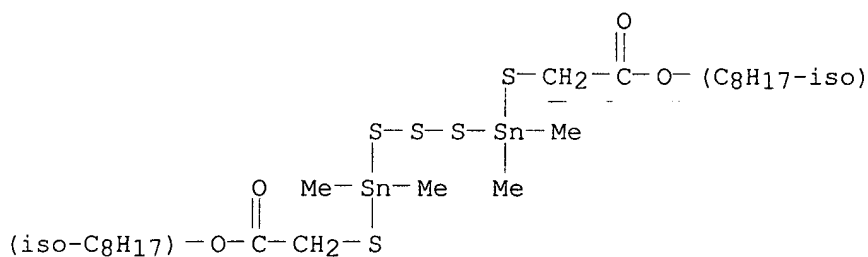






RN 55230-74-5 HCAPLUS

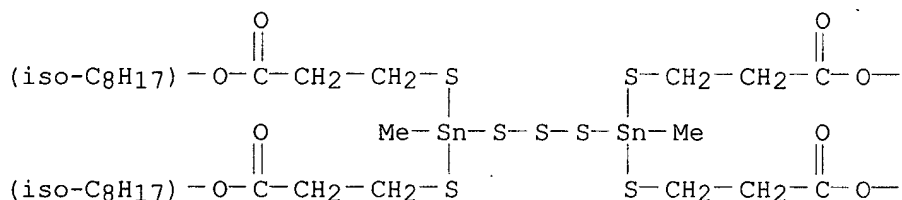
CN 3,5,6,7,9-Pentathia-4,8-distannaundecanedioic acid, 4,4,8,8-tetramethyl-, diisooctyl ester (9CI) (CA INDEX NAME)



RN 55230-75-6 HCAPLUS

CN 4,6,7,8,10-Pentathia-5,9-distannatriecanedioic acid, 5,9-bis[[3-(isooctyloxy)-3-oxopropyl]thio]-5,9-dimethyl-, diisooctyl ester (9CI) (CA INDEX NAME)

PAGE 1-A



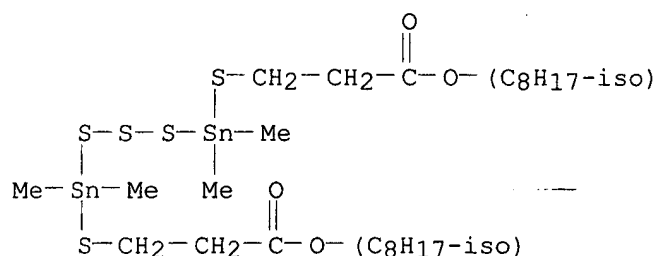
PAGE 1-B

— (C<sub>8</sub>H<sub>17</sub>-iso) 1

— (C<sub>8</sub>H<sub>17</sub>-iso)

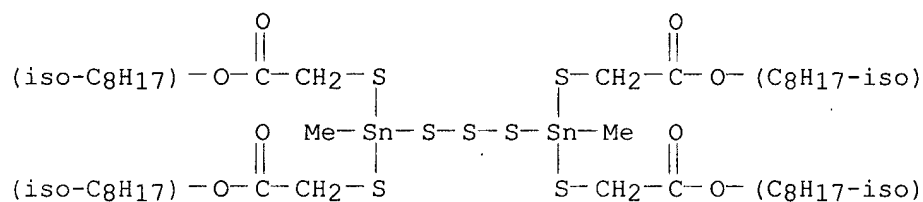
RN 55230-76-7 HCAPLUS

CN 4,6,7,8,10-Pentathia-5,9-distannatridecanedioic acid, 5,5,9,9-tetramethyl-, diisooctyl ester (9CI) (CA INDEX NAME)



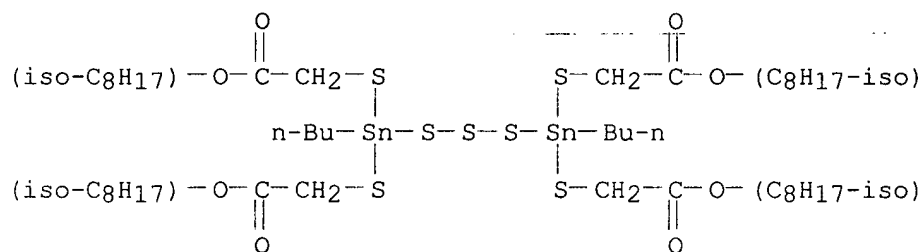
RN 55230-78-9 HCAPLUS

CN 3,5,6,7,9-Pentathia-4,8-distannaundecanedioic acid, 4,8-bis[[2-(isooctyloxy)-2-oxoethyl]thio]-4,8-dimethyl-, diisooctyl ester (9CI) (CA INDEX NAME)



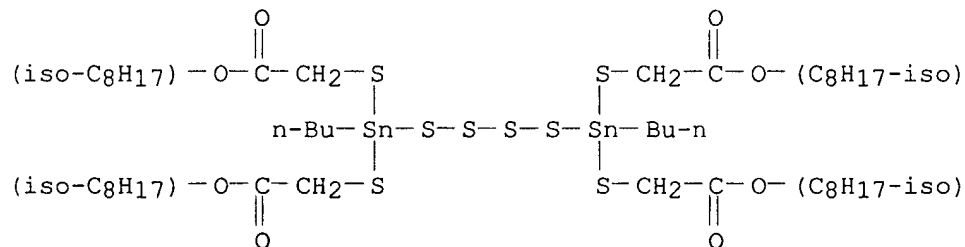
RN 55230-79-0 HCAPLUS

CN 3,5,6,7,9-Pentathia-4,8-distannaundecanedioic acid, 4,8-dibutyl-4,8-bis[[2-(isooctyloxy)-2-oxoethyl]thio]-, diisooctyl ester (9CI) (CA INDEX NAME)



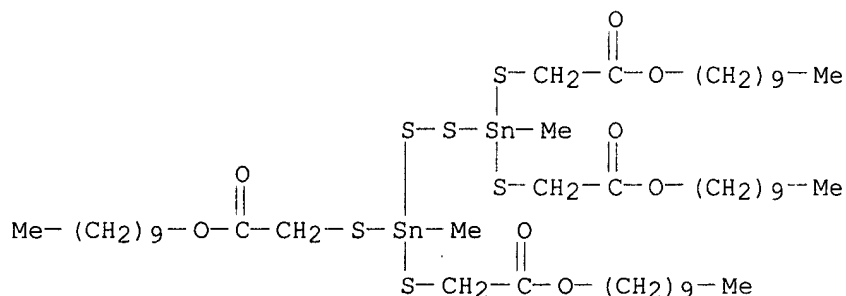
RN 55230-80-3 HCAPLUS

CN 3,5,6,7,8,10-Hexathia-4,9-distannadodecanedioic acid, 4,9-dibutyl-4,9-bis[[2-(isooctyloxy)-2-oxoethyl]thio]-, diisooctyl ester (9CI) (CA INDEX NAME)



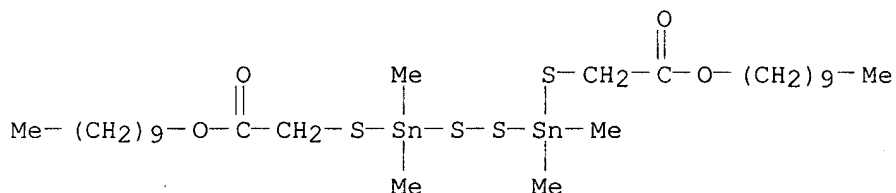
RN 55231-57-7 HCAPLUS

CN 3,5,6,8-Tetrathia-4,7-distannadecanedioic acid, 4,7-bis[[2-(decyloxy)-2-oxoethyl]thio]-4,7-dimethyl-, didecyl ester (9CI) (CA INDEX NAME)



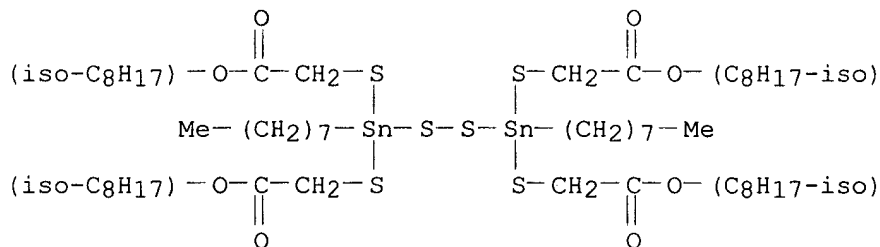
RN 55231-58-8 HCAPLUS

CN 3,5,6,8-Tetrathia-4,7-distannadecanedioic acid, 4,4,7,7-tetramethyl-, didecyl ester (9CI) (CA INDEX NAME)



RN 56793-35-2 HCAPLUS

CN 3,5,6,8-Tetrathia-4,7-distannadecanedioic acid, 4,7-bis[[2-(isooctyloxy)-2-oxoethyl]thio]-4,7-diioctyl-, diisooctyl ester (9CI) (CA INDEX NAME)



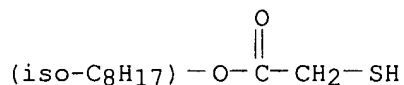
IT 25103-09-7

RL: RCT (Reactant)

(reaction of, with methyltin trichloride and sodium disulfide)

RN 25103-09-7 HCAPLUS

CN Acetic acid, mercapto-, isooctyl ester (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



L55 ANSWER 26 OF 38 HCAPLUS COPYRIGHT 2002 ACS

AN 1974:553789 HCAPLUS

DN 81:153789

TI Dimethyltin ester

IN Weisfeld, Lewis B.; Witman, Robert C.

PA Cincinnati Milacron Chemicals, Inc.

SO Ger. Offen., 46 pp.

CODEN: GWXXBX

DT Patent

LA German

IC C07F; C08G

CC 36-6 (Plastics Manufacture and Processing)

Section cross-reference(s): 29, 4

FAN.CNT 3

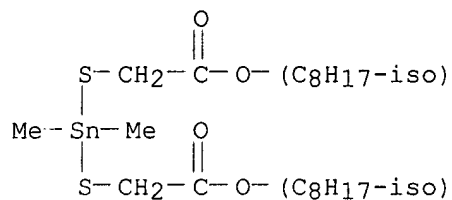
|      | PATENT NO.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | KIND | DATE     | APPLICATION NO. | DATE         |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|----------|-----------------|--------------|
| PI   | DE 2329039                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | A1   | 19740704 | DE 1973-2329039 | 19730607     |
|      | US 3810868                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | A    | 19740514 | US 1972-317228  | 19721221 <-- |
|      | US 3887519                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | A    | 19750603 | US 1974-435264  | 19740121 <-- |
|      | US 3925309                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | A    | 19751209 | US 1974-459372  | 19740409 <-- |
| PRAI | US 1972-317228                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |      | 19721221 |                 |              |
|      | US 1971-177516                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |      | 19710902 |                 |              |
|      | DE 1973-2329039                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |      | 19730607 |                 |              |
|      | US 1974-435264                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |      | 19740121 |                 |              |
| AB   | Dimethyltin dichloride (I) [753-73-1] contg. 5.0% Me <sub>3</sub> SnCl impurity was heated with SnCl <sub>4</sub> at 120.deg. to convert Me <sub>3</sub> SnCl to I, and this I (0.5% Me <sub>3</sub> SnCl content) was used to prep. dimethyltinbis(isooctyl thioglycolate) (II) [26636-01-1] and dimethyltinbis(isooctyl 3-mercaptopropionate) [42378-34-7] which were less toxic than similar but less pure tin compds. prepd. from I contg. 5.0% Me <sub>3</sub> SnCl. The prepd. compds were useful as stabilizers for PVC [9002-86-2]. II was water-insol. Thus, II prepd. from isooctyl thioglycolate [25103-09-7] and I contg. 0.5% Me <sub>3</sub> SnCl (optionally after conversion of I to dimethyltin oxide [2273-45-2]) had LD <sub>50</sub> 1020 mg/kg (rat), compared with 380 mg/kg for II prepd. with I contg. 5% Me <sub>3</sub> SnCl. |      |          |                 |              |
| ST   | tin methyl isooctyloxycarbonylalkylthio toxicity; toxicity methyltin isooctyl thioglycolate; PVC methyltin isooctylthioglycolate toxicity; purifn methyltin chloride; heat stabilizer PVC; safety tin heat stabilizer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |      |          |                 |              |
| IT   | Heat stabilizers                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |      |          |                 |              |
|      | (dimethyltinbis(isooctyl thioalkanoates), nontoxic, for PVC)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |      |          |                 |              |
| IT   | Safety                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |      |          |                 |              |
|      | (of tin heat stabilizer)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |      |          |                 |              |
| IT   | Disproportionation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |      |          |                 |              |
|      | (of trimethyltin chloride impurity in dimethyltin dichloride)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |      |          |                 |              |
| IT   | 9002-86-2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |      |          |                 |              |
|      | RL: USES (Uses)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |      |          |                 |              |
|      | (heat stabilizers for, dimethyltinbis(isooctyl thioalkanoates) as)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |      |          |                 |              |
| IT   | 26636-01-1 42378-34-7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |      |          |                 |              |
|      | RL: MOA (Modifier or additive use); USES (Uses)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |      |          |                 |              |
|      | (heat stabilizers, nontoxic, for PVC)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |      |          |                 |              |
| IT   | 753-73-1P 2273-45-2P                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |      |          |                 |              |
|      | RL: PUR (Purification or recovery); PREP (Preparation)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |      |          |                 |              |
|      | (purifn. of, for manuf. of dimethyltinbis(isooctyl thioalkanoates) with low toxicity)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |      |          |                 |              |
| IT   | 25103-09-7 30374-01-7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |      |          |                 |              |
|      | RL: RCT (Reactant)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |      |          |                 |              |
|      | (reaction of, with dimethyltin chloride and oxide)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |      |          |                 |              |

*Not reverse*

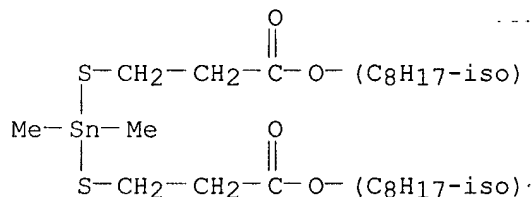
IT 26636-01-1 42378-34-7

RL: MOA (Modifier or additive use); USES (Uses)  
(heat stabilizers, nontoxic, for PVC)

RN 26636-01-1 HCAPLUS

CN Acetic acid, 2,2'-[(dimethylstannylene)bis(thio)]bis-, diisooctyl ester  
(9CI) (CA INDEX NAME)

RN 42378-34-7 HCAPLUS

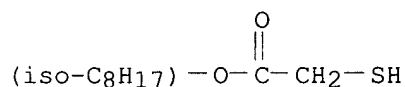
CN Propanoic acid, 3,3'-[(dimethylstannylene)bis(thio)]bis-, diisooctyl ester  
(9CI) (CA INDEX NAME)

IT 25103-09-7 30374-01-7

RL: RCT (Reactant)  
(reaction of, with dimethyltin chloride and oxide)

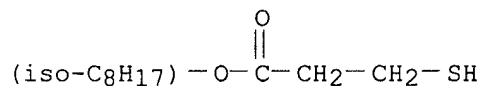
RN 25103-09-7 HCAPLUS

CN Acetic acid, mercapto-, isooctyl ester (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



RN 30374-01-7 HCAPLUS

CN Propanoic acid, 3-mercapto-, isooctyl ester (9CI) (CA INDEX NAME)



L55 ANSWER 27 OF 38 HCAPLUS COPYRIGHT 2002 ACS

AN 1974:506664 HCAPLUS

DN 81:106664

TI Stabilizers for vinyl chloride resins

IN Oakes, Vincent; Hutton, Ronald E.; Iles, Brian R.

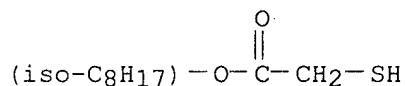
PA Interstab Ltd.

SO Brit., 3 pp. Division of Brit. 1,326,057  
 CODEN: BRXXAA  
 DT Patent  
 LA English  
 IC C08F  
 CC 36-6 (Plastics Manufacture and Processing)  
 FAN.CNT 1

DE 2149323

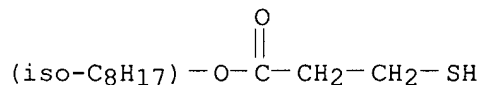
|    | PATENT NO.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | KIND       | DATE       | APPLICATION NO. | DATE     |
|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|------------|-----------------|----------|
| PI | GB 1349913                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | A          | 19740410   | GB 1972-8018    | 19701002 |
| AB | Mixts. of a dialkyltin compd. and a thioglycolate had a synergic effect on each other in the heat and light stabilization of PVC [9002-86-2]. Thus, 0.05 in. thick sheet obtained from 100 wt. parts PVC mixed 5 min at 150.deg. with 1 wt. part lubricant and 2 wt. parts an equimolar mixt. of dibutyltin sulfide [4253-22-9] and ethylene glycol monothioglycolate [7380-58-7] took 60 min to become faint yellow at 185.deg. compared with 30 min for a compn. contg. only the Sn stabilizer. |            |            |                 |          |
| ST | heat stabilizer PVC; light stabilizer PVC; alkyltin thioglycolate stabilizer; tin alkyl stabilizer PVC                                                                                                                                                                                                                                                                                                                                                                                            |            |            |                 |          |
| IT | Heat stabilizers                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |            |            |                 |          |
|    | (dialkytin compds.-thioglycolates, for PVC)                                                                                                                                                                                                                                                                                                                                                                                                                                                       |            |            |                 |          |
| IT | Discoloration prevention                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |            |            |                 |          |
|    | (of PVC, by dialkyltin compds.-thioglycolates)                                                                                                                                                                                                                                                                                                                                                                                                                                                    |            |            |                 |          |
| IT | 7380-58-7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 25103-09-7 | 30374-01-7 |                 |          |
|    | RL: MOA (Modifier or additive use); USES (Uses)                                                                                                                                                                                                                                                                                                                                                                                                                                                   |            |            |                 |          |
|    | (heat stabilizers, contg. dialkyltin compds., for PVC)                                                                                                                                                                                                                                                                                                                                                                                                                                            |            |            |                 |          |
| IT | 4253-22-9                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 26401-97-8 |            |                 |          |
|    | RL: MOA (Modifier or additive use); USES (Uses)                                                                                                                                                                                                                                                                                                                                                                                                                                                   |            |            |                 |          |
|    | (heat stabilizers, contg. thioglycolates, for PVC)                                                                                                                                                                                                                                                                                                                                                                                                                                                |            |            |                 |          |
| IT | 9002-86-2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |            |            |                 |          |
|    | RL: USES (Uses)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |            |            |                 |          |
|    | (stabilizers for, dialkyltin compds.-thioglycolates as)                                                                                                                                                                                                                                                                                                                                                                                                                                           |            |            |                 |          |
| IT | 25103-09-7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 30374-01-7 |            |                 |          |
|    | RL: MOA (Modifier or additive use); USES (Uses)                                                                                                                                                                                                                                                                                                                                                                                                                                                   |            |            |                 |          |
|    | (heat stabilizers, contg. dialkyltin compds., for PVC)                                                                                                                                                                                                                                                                                                                                                                                                                                            |            |            |                 |          |
| RN | 25103-09-7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | HCAPLUS    |            |                 |          |
| CN | Acetic acid, mercapto-, isooctyl ester (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)                                                                                                                                                                                                                                                                                                                                                                                                                       |            |            |                 |          |

Not reverse



RN 30374-01-7 HCAPLUS

CN Propanoic acid, 3-mercapto-, isooctyl ester (9CI) (CA INDEX NAME)



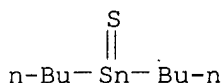
IT 4253-22-9 26401-97-8

RL: MOA (Modifier or additive use); USES (Uses)

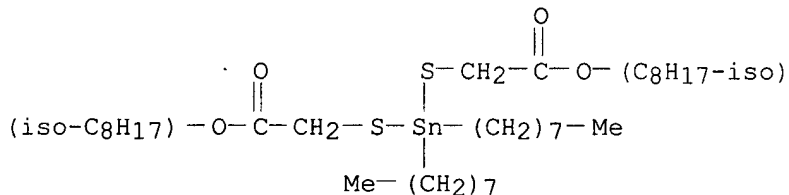
(heat stabilizers, contg. thioglycolates, for PVC)

RN 4253-22-9 HCAPLUS

CN Stannane, dibutylthio- (8CI, 9CI) (CA INDEX NAME)



RN 26401-97-8 HCAPLUS

CN Acetic acid, 2,2'-[(dioctylstannylene)bis(thio)]bis-, diisooctyl ester  
(9CI) (CA INDEX NAME)

L55 ANSWER 28 OF 38 HCAPLUS COPYRIGHT 2002 ACS

AN 1974:121073 HCAPLUS

DN 80:121073

TI Structure of organotin mercapto esters

AU Stapfer, Christian H.; Herber, Rolfe H.

CS Cincinnati Milacron Chem. Inc., Cincinnati, Ohio, USA

SO J. Organometal. Chem. (1974), 66(3), 425-36

CODEN: JORCAI

DT Journal

LA English

CC 29-8 (Organometallic and Organometalloidal Compounds)

Section cross-reference(s): 22

AB The structural differences existing among organotin mercaptoesters  $\text{RnSnS}(\text{CH}_2)_1-2\text{COOR}'_4-\text{n}$  are reported. Infrared and Moessbauer spectroscopies revealed that thioglycolate and 3-mercaptopropionate esters adopt cyclic cis- or trans-trigonal bipyramidal as well as trans-octahedral configurations, depending on the **compn.** of the organotin compds. and their mode of prepn. Structural relationship among organotin mercaptides and thioacetates are also discussed.

ST tin mercapto ester structure; Moessbauer mercapto ester tin; stannane carboxyalkylenethio

IT Moessbauer effect

(structure of organotin mercapto esters in relation to)

IT 1185-81-5P 3644-27-7P 15481-49-9P

26896-31-1P 31614-63-8P 50295-26-6P

51287-84-4P 52165-03-4P 52282-41-4P

52282-42-5P 52282-43-6P 52282-44-7P

52282-45-8P 52282-46-9P 52282-47-0P

52282-48-1P 52282-49-2P 52282-50-5P

52282-51-6P 52282-52-7P 52282-53-8P

52306-01-1P 52306-02-2P 52306-03-3P

52306-04-4P 52306-05-5P 52340-38-2P

52340-39-3P 52389-28-3P 52437-16-8P

52437-17-9P 52437-52-2P 52795-25-2P

RL: SPN (Synthetic preparation); PREP (Preparation)

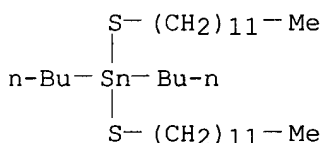
(prepn., ir and Moessbauer spectra of, structure of)

IT 2365-48-2 7383-63-3

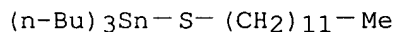
RL: RCT (Reactant)

*Not reverse*

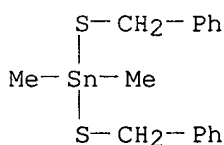
(reaction with dichlorodialkylstannanes)  
 IT 25103-09-7  
 RL: RCT (Reactant)  
 (reaction with dichlorostannanes)  
 IT 753-73-1 1118-46-3  
 RL: RCT (Reactant)  
 (reaction with mercapto carboxylates)  
 IT 683-18-1 1135-99-5  
 RL: RCT (Reactant)  
 (reaction with mercaptocarboxylates)  
 IT 56-35-9  
 RL: RCT (Reactant)  
 (reaction with mercaptocarboxylic esters)  
 IT 993-16-8  
 RL: RCT (Reactant)  
 (reaction with thioglycoates)  
 IT 100-53-8 112-55-0 30374-01-7  
 RL: RCT (Reactant)  
 (reaction with tin compds.)  
 IT 1185-81-5P 3644-27-7P 15481-49-9P  
 26896-31-1P 31614-63-8P 50295-26-6P  
 51287-84-4P 52165-03-4P 52282-41-4P  
 52282-42-5P 52282-43-6P 52282-44-7P  
 52282-45-8P 52282-46-9P 52282-47-0P  
 52282-48-1P 52282-49-2P 52282-50-5P  
 52282-51-6P 52282-52-7P 52282-53-8P  
 52306-01-1P 52306-02-2P 52306-03-3P  
 52306-04-4P 52306-05-5P 52340-38-2P  
 52340-39-3P 52389-28-3P 52437-16-8P  
 52437-17-9P 52437-52-2P 52795-25-2P  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (prepn., ir and Moessbauer spectra of, structure of)  
 RN 1185-81-5 HCAPLUS  
 CN Stannane, dibutylbis(dodecylthio)- (8CI, 9CI) (CA INDEX NAME)



RN 3644-27-7 HCAPLUS  
 CN Stannane, tributyl(dodecylthio)- (8CI, 9CI) (CA INDEX NAME)



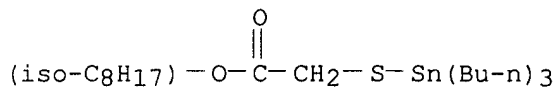
RN 15481-49-9 HCAPLUS  
 CN Stannane, dimethylbis[(phenylmethyl)thio]- (9CI) (CA INDEX NAME)





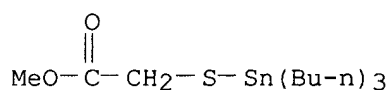
RN 26896-31-1 HCAPLUS

CN Acetic acid, [(tributylstannyl)thio]-, isooctyl ester (8CI, 9CI) (CA INDEX NAME)



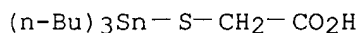
RN 31614-63-8 HCAPLUS

CN Acetic acid, [(tributylstannyl)thio]-, methyl ester (8CI, 9CI) (CA INDEX NAME)



RN 50295-26-6 HCAPLUS

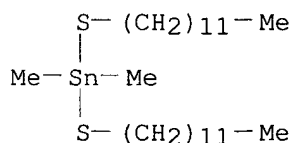
CN Acetic acid, [(tributylstannyl)thio]-, sodium salt (9CI) (CA INDEX NAME)



● Na

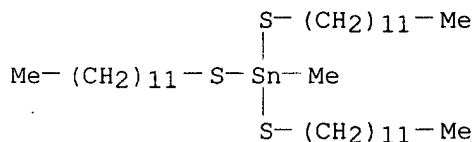
RN 51287-84-4 HCAPLUS

CN Stannane, bis(dodecylthio)dimethyl- (9CI) (CA INDEX NAME)



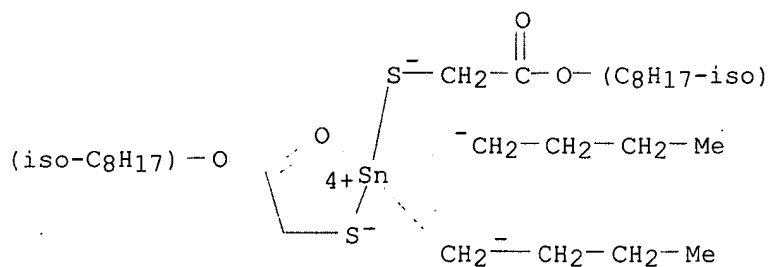
RN 52165-03-4 HCAPLUS

CN Stannane, tris(dodecylthio)methyl- (9CI) (CA INDEX NAME)



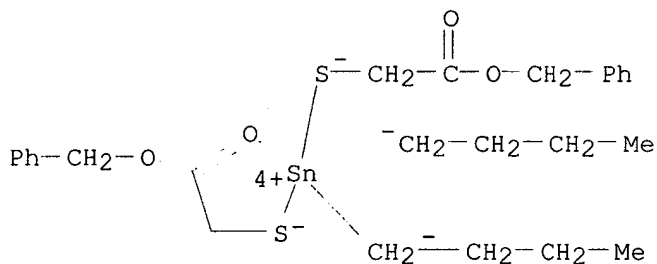
RN 52282-41-4 HCAPLUS

CN Tin, dibutyl(isooctyl mercaptoacetato-O',S)(isooctyl mercaptoacetato-S)- (9CI) (CA INDEX NAME)



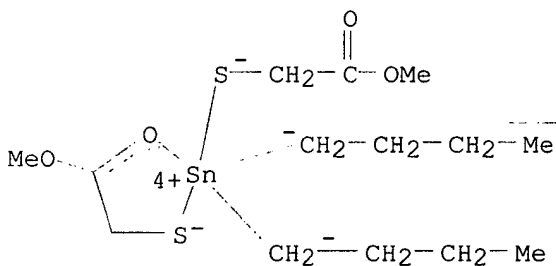
RN 52282-42-5 HCAPLUS

CN Tin, dibutyl(phenylmethyl mercaptoacetato-O',S) (phenylmethyl mercaptoacetato-S)- (9CI) (CA INDEX NAME)



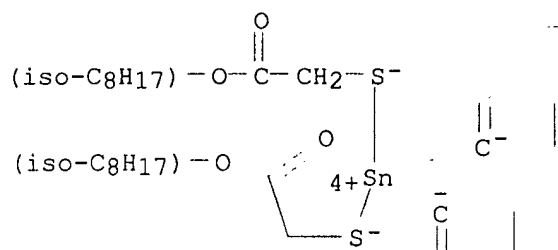
RN 52282-43-6 HCAPLUS

CN Tin, dibutyl(methyl mercaptoacetato-O',S) (methyl mercaptoacetato-S)-, (TB-5-33)- (9CI) (CA INDEX NAME)



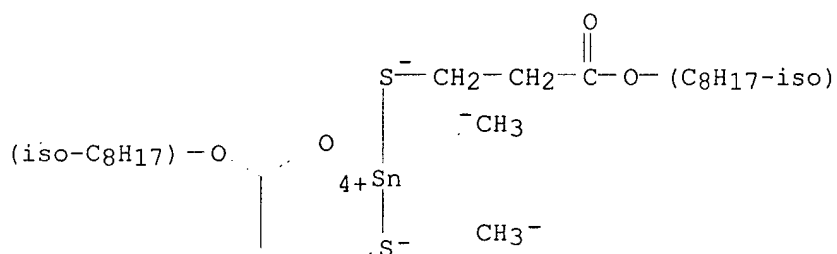
RN 52282-44-7 HCAPLUS

CN Tin, (isooctyl mercaptoacetato-O',S) (isooctyl mercaptoacetato-S)diphenyl- (9CI) (CA INDEX NAME)



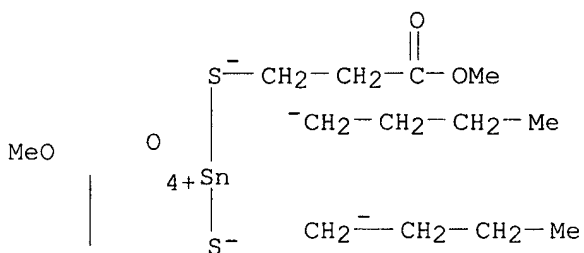
RN 52282-45-8 HCAPLUS

CN Tin, (isooctyl mercaptoacetato-O',S)(isooctyl mercaptoacetato-S)dimethyl-  
(9CI) (CA INDEX NAME)



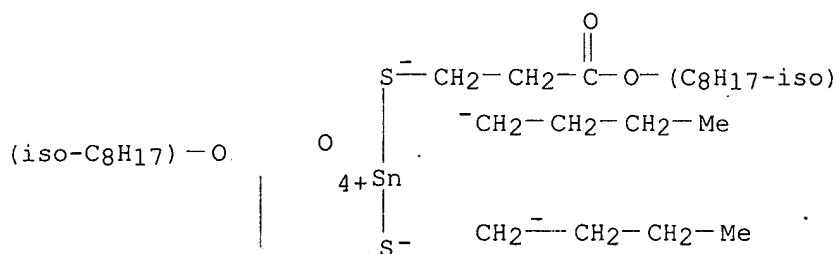
RN 52282-46-9 HCAPLUS

CN Tin, dibutyl (methyl 3-mercaptopropanoato-O',S) (methyl 3-mercaptopropanoato-S)- (9CI) (CA INDEX NAME)



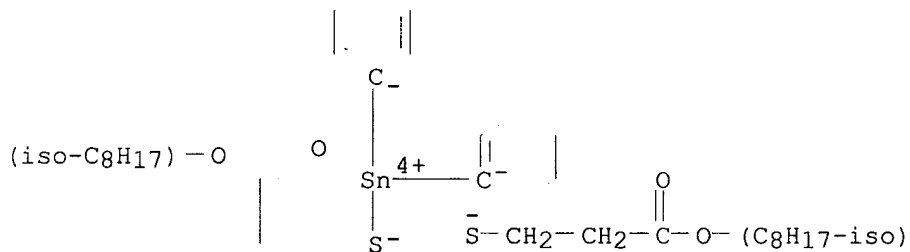
RN 52282-47-0 HCAPLUS

CN Tin, dibutyl(isooctyl 3-mercaptopropanoato-O',S) (isooctyl 3-mercaptopropanoato-S)-, (TB-5-33)- (9CI) (CA INDEX NAME)



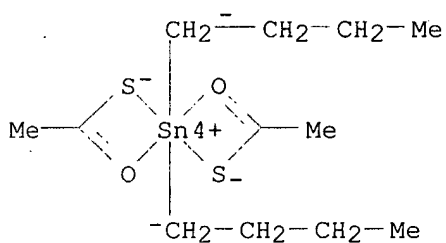
RN 52282-48-1 HCAPLUS

Tin, (isooctyl 3-mercaptopropanoato-O',S)(isooctyl 3-mercaptopropanoato-S)diphenyl- (9CI) (CA INDEX NAME)



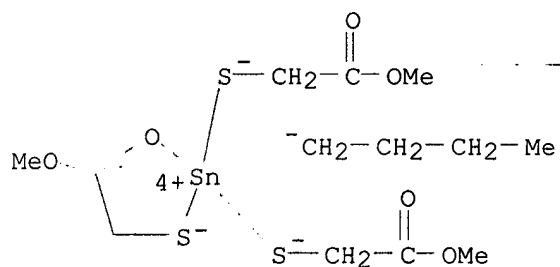
RN 52282-49-2 HCAPLUS

CN Tin, dibutylbis(ethanethioato-O,S)- (9CI) (CA INDEX NAME)



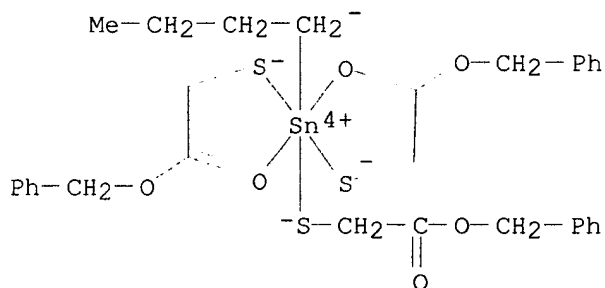
RN 52282-50-5 HCAPLUS

CN Tin, butyl (methyl mercaptoacetato-O',S)bis (methyl mercaptoacetato-S)-(9CI) (CA INDEX NAME)



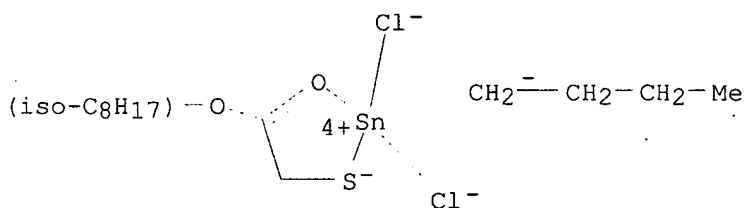
RN 52282-51-6 HCAPLUS

CN Tin, butylbis(phenylmethyl mercaptoacetato-O',S) (phenylmethyl mercaptoacetato-S)- (9CI) (CA INDEX NAME)



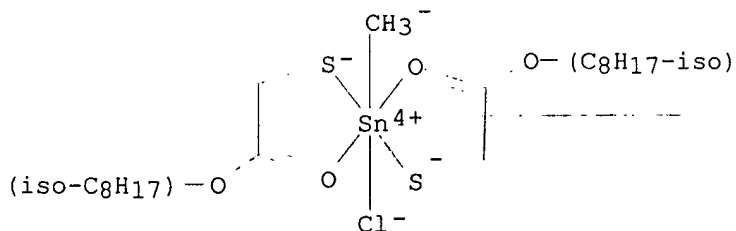
RN 52282-52-7 HCAPLUS

CN Tin, butyldichloro(isooctyl mercaptoacetato-O',S)- (9CI) (CA INDEX NAME)

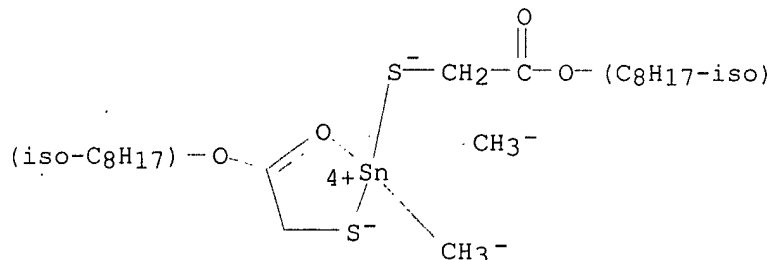


RN 52282-53-8 HCAPLUS

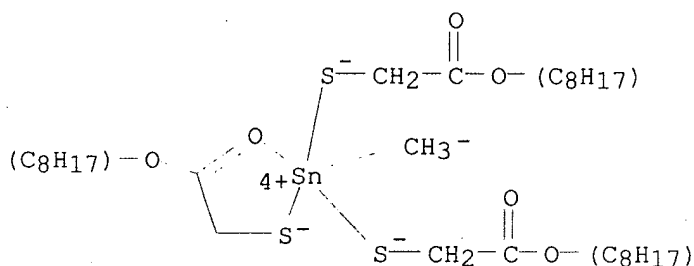
CN Tin, chlorobis(isooctyl mercaptoacetato-O',S)methyl- (9CI) (CA INDEX NAME)



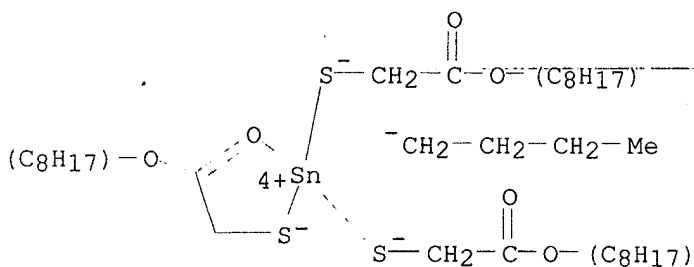
RN 52306-01-1 HCAPLUS

CN Tin, (isooctyl mercaptoacetato-O',S)(isooctyl mercaptoacetato-S)dimethyl-,  
(TB-5-33)- (9CI) (CA INDEX NAME)

RN 52306-02-2 HCAPLUS

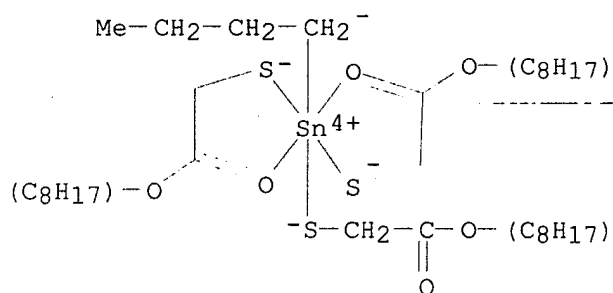
CN Tin, (isooctyl mercaptoacetato-O',S)bis(isooctyl mercaptoacetato-S)methyl-,  
, (TB-5-22)- (9CI) (CA INDEX NAME)

RN 52306-03-3 HCAPLUS

CN Tin, butyl(isooctyl mercaptoacetato-O',S)bis(isooctyl mercaptoacetato-S)-  
(9CI) (CA INDEX NAME)

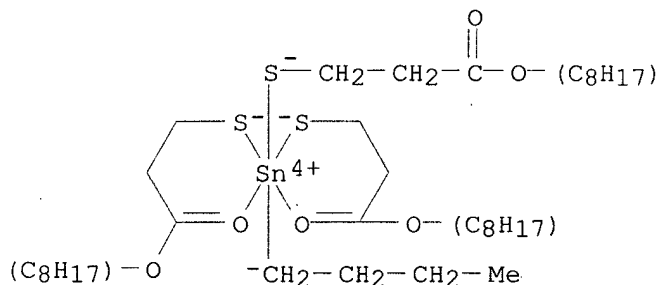
RN 52306-04-4 HCAPLUS

CN Tin, butylbis(isooctyl mercaptoacetato-O',S)(isooctyl mercaptoacetato-S)-  
(9CI) (CA INDEX NAME)



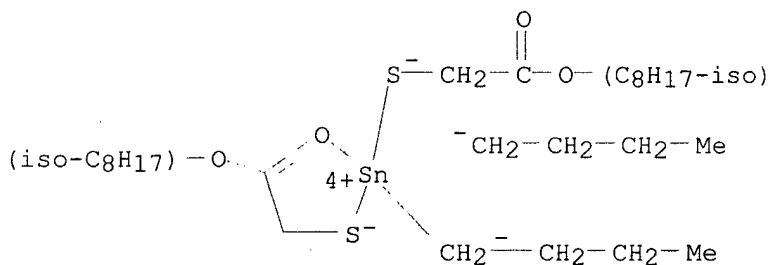
RN 52306-05-5 HCAPLUS

CN Tin, butylbis(isooctyl 3-mercaptopropanoato-O',S)(isooctyl 3-mercaptopropanoato-S)- (9CI) (CA INDEX NAME)



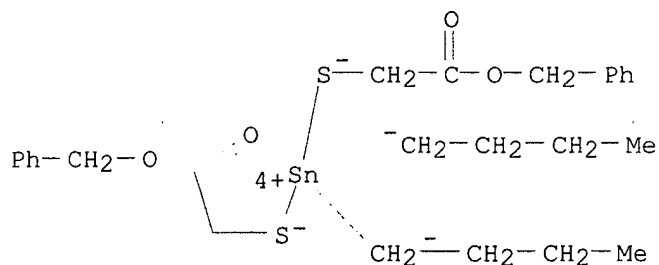
RN 52340-38-2 HCAPLUS

CN Tin, dibutyl(isooctyl mercaptoacetato-O',S)(isooctyl mercaptoacetato-S)-, (TB-5-33)- (9CI) (CA INDEX NAME)

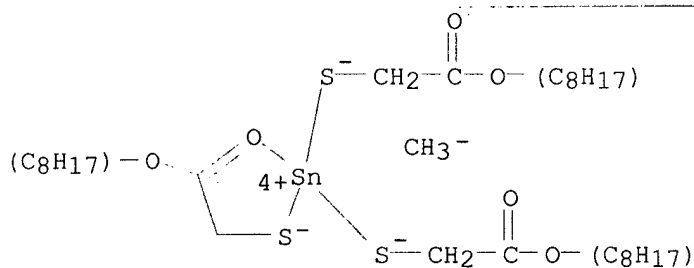


RN 52340-39-3 HCAPLUS

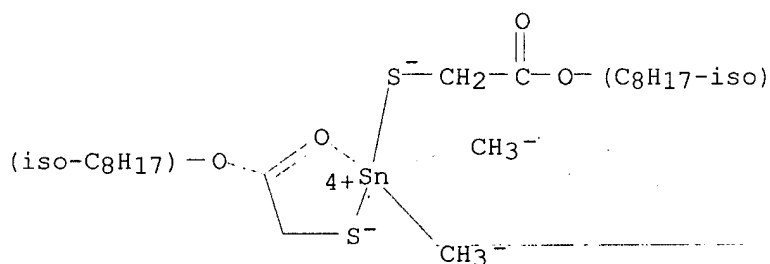
CN Tin, dibutyl(phenylmethyl mercaptoacetato-O',S)(phenylmethyl mercaptoacetato-S)-, (TB-5-33)- (9CI) (CA INDEX NAME)



RN 52389-28-3 HCAPLUS

CN Tin, (isooctyl mercaptoacetato-O',S)bis(isooctyl mercaptoacetato-S)methyl-  
(9CI) (CA INDEX NAME)

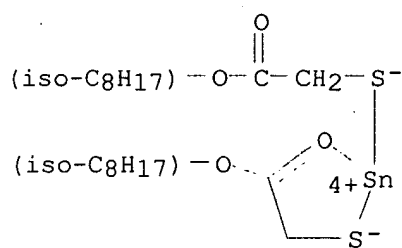
RN 52437-16-8 HCAPLUS

CN Tin, (isooctyl mercaptoacetato-O',S)(isooctyl mercaptoacetato-S)dimethyl-,  
(TB-5-12)- (9CI) (CA INDEX NAME)

RN 52437-17-9 HCAPLUS

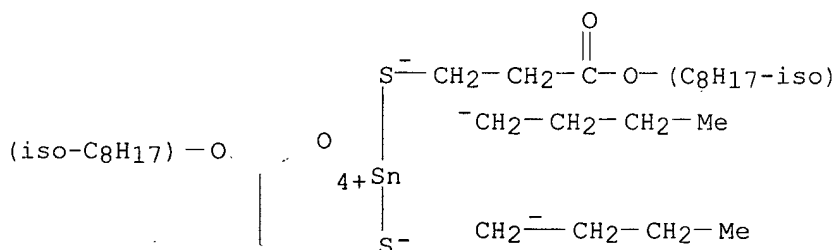
CN Tin, (isooctyl mercaptoacetato-O',S)(isooctyl mercaptoacetato-S)diphenyl-,  
(TB-5-44)- (9CI) (CA INDEX NAME)





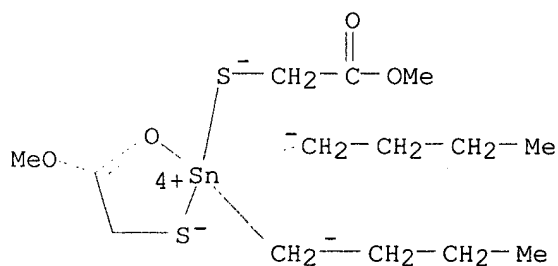
RN 52437-52-2 HCAPLUS

CN Tin, dibutyl(isooctyl 3-mercaptopropanoato-O',S)(isooctyl 3-mercaptopropanoato-S)- (9CI) (CA INDEX NAME)



RN 52795-25-2 HCAPLUS

CN Tin, dibutyl(methyl mercaptoacetato-O',S)(methyl mercaptoacetato-S)- (9CI) (CA INDEX NAME)



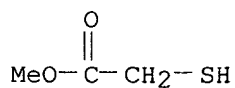
IT 2365-48-2

RL: RCT (Reactant)

(reaction with dichlorodialkylstannanes)

RN 2365-48-2 HCAPLUS

CN Acetic acid, mercapto-, methyl ester (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

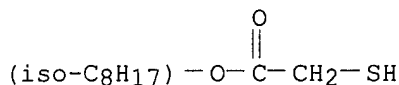


IT 25103-09-7

RL: RCT (Reactant)  
(reaction with dichlorostannanes)

RN 25103-09-7 HCAPLUS

CN Acetic acid, mercapto-, isooctyl ester (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

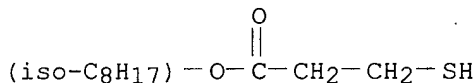


IT 30374-01-7

RL: RCT (Reactant)  
(reaction with tin compds.)

RN 30374-01-7 HCAPLUS

CN Propanoic acid, 3-mercapto-, isooctyl ester (9CI) (CA INDEX NAME)



L55 ANSWER 29 OF 38 HCAPLUS COPYRIGHT 2002 ACS

AN 1974:27903 HCAPLUS

DN 80:27903

TI Tin stabilizer mixtures for PVC

IN Oakes, Vincent; Hutton, Ronald E.; Iles, Brian R.

PA AKZO G.m.b.H.

SO Ger. Offen., 26 pp.

CODEN: GWXXBX

DT Patent

LA German

IC C08F; C08K

CC 36-6 (Plastics Manufacture and Processing)

Section cross-reference(s): 29

FAN.CNT 1

|      | PATENT NO.   | KIND | DATE     | APPLICATION NO. | DATE     |
|------|--------------|------|----------|-----------------|----------|
| PI   | DE 2307360   | A1   | 19730830 | DE 1973-2307360 | 19730215 |
|      | JP 48089953  | A2   | 19731124 | JP 1973-18828   | 19730215 |
| PRAI | GB 1972-7058 |      | 19720216 |                 |          |

AB Stabilizer mixts. for poly(vinyl chloride) [9002-86-2] contained a (di)alkyltin sulfide and a compd. such as mono-octyltin tris(isooctylthioglycolate) [26401-86-5] or dibutyltin dilaurate (I) [77-58-7]. The mixts. were optionally prepd. by simultaneous reaction of (di)alkyltin chloride mixts. with esters in aq. NaOH contg. Na2S. Thus, films from PVC 100, fatty alc. lubricant 1, I 1.0, and dibutyltin sulfide (II) [4253-22-9] 1.0 part turned light yellow or black on heating in air of 185.deg. for 50 or 100 min, resp., vs. 20 or 70 min, resp., for films contg. 2.0 parts I and no II.

ST PVC heat stabilizer; tin compd PVC stabilizer; sulfide tin PVC stabilizer

IT Heat stabilizers

(alkyltin sulfide-alkyltin carboxylate mixts., for PVC)

IT 9002-86-2

RL: USES (Uses)

(heat stabilizers for, (di)alkyltin sulfide-(di)alkyltin carboxylate

*Not reverse*

mixts. as)

IT 77-58-7 1185-81-5 3572-47-2 4253-22-9  
 10039-33-5 13269-74-4 15666-29-2 25168-21-2  
 25168-24-5 25852-70-4 26401-86-5  
 26401-97-8 33397-79-4 36432-42-5 50716-92-2  
 50788-67-5  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (heat stabilizers, for PVC)

IT 1344-08-7  
 RL: RCT (Reactant)  
 (reaction of, with alkyltin chlorides and alkyl thioglycolate or maleate)

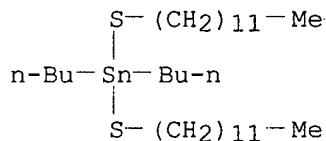
IT 7423-42-9 25103-09-7  
 RL: RCT (Reactant)  
 (reaction of, with alkyltin chlorides and sodium sulfide)

IT 3542-36-7 29440-63-9  
 RL: RCT (Reactant)  
 (reaction of, with ethylhexyl maleate and sodium sulfide)

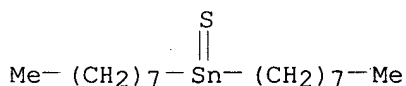
IT 683-18-1 1118-46-3  
 RL: RCT (Reactant)  
 (reaction of, with isooctyl thioglycolate and sodium sulfide)

IT 1185-81-5 3572-47-2 4253-22-9  
 13269-74-4 15666-29-2 25168-24-5  
 25852-70-4 26401-86-5 26401-97-8  
 33397-79-4 36432-42-5 50788-67-5  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (heat stabilizers, for PVC)

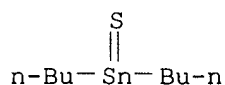
RN 1185-81-5 HCAPLUS  
 CN Stannane, dibutylbis(dodecylthio)- (8CI, 9CI) (CA INDEX NAME)



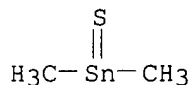
RN 3572-47-2 HCAPLUS  
 CN Stannane, dioctylthioxo- (8CI, 9CI) (CA INDEX NAME)



RN 4253-22-9 HCAPLUS  
 CN Stannane, dibutylthioxo- (8CI, 9CI) (CA INDEX NAME)

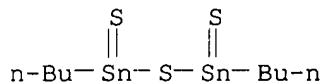


RN 13269-74-4 HCAPLUS  
 CN Stannane, dimethylthioxo- (8CI, 9CI) (CA INDEX NAME)



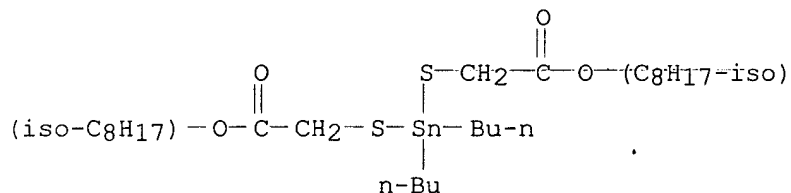
RN 15666-29-2 HCAPLUS

CN Distannathiane, dibutyldithioxo- (9CI) (CA INDEX NAME)



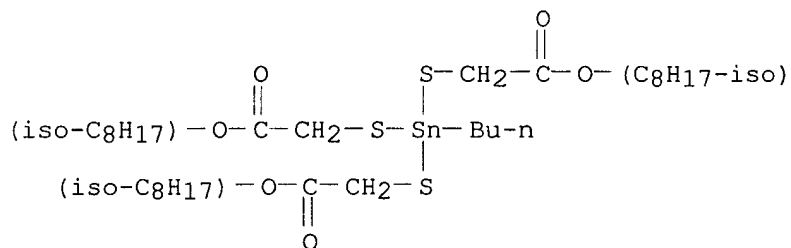
RN 25168-24-5 HCAPLUS

CN Acetic acid, 2,2',2''-[(dibutylstannylene)bis(thio)]bis-, diisooctyl ester (9CI) (CA INDEX NAME)



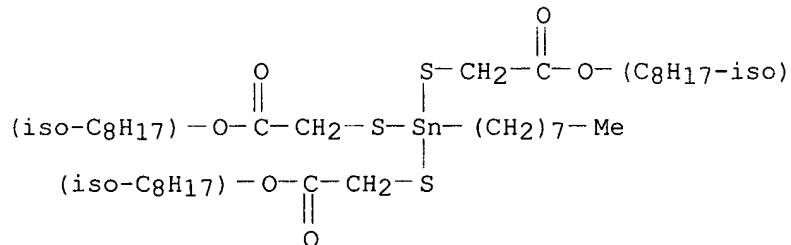
RN 25852-70-4 HCAPLUS

CN Acetic acid, 2,2',2''-[(butylstannylidyne)tris(thio)]tris-, triisooctyl ester (9CI) (CA INDEX NAME)



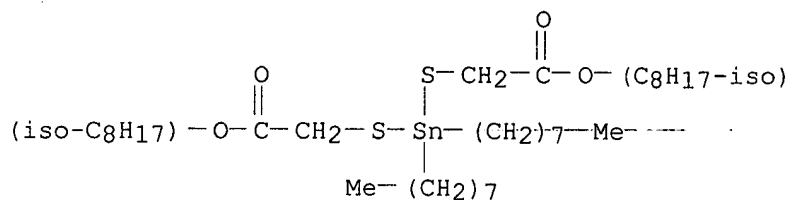
RN 26401-86-5 HCAPLUS

CN Acetic acid, 2,2',2''-[(octylstannylidyne)tris(thio)]tris-, triisooctyl ester (9CI) (CA INDEX NAME)



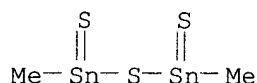
RN 26401-97-8 HCAPLUS

CN Acetic acid, 2,2'-[(diocetylstannylene)bis(thio)]bis-, diisooctyl ester  
(9CI) (CA INDEX NAME)



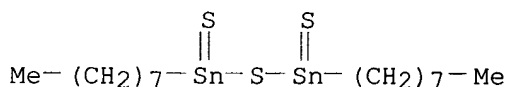
RN 33397-79-4 HCAPLUS

|    |                                 |       |                 |
|----|---------------------------------|-------|-----------------|
| CN | Distannathiane, dimethyldithio- | (9CI) | (CA INDEX NAME) |
|----|---------------------------------|-------|-----------------|



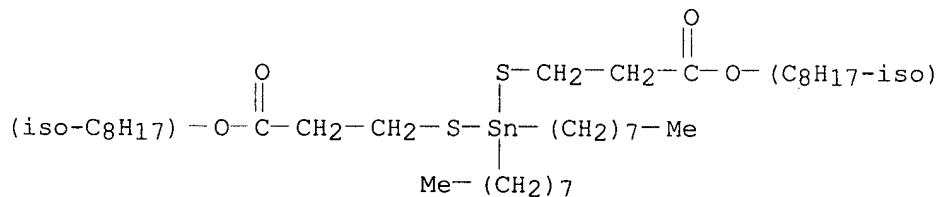
RN 36432-42-5 HCAPLUS

CN Distannathiane, dioctyldithioxo- (9CI) (CA INDEX NAME)



RN 50788-67-5 HCAPLUS

CN Propanoic acid, 3,3'-[(dioctylstannylene)bis(thio)]bis-, diisooctyl ester  
(9CI) (CA INDEX NAME)



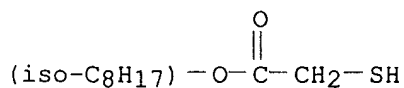
IT 25103-09-7

RL: RCT (Reactant)

(reaction of, with alkyltin chlorides and sodium sulfide)

RN 25103-09-7 HCAPLUS

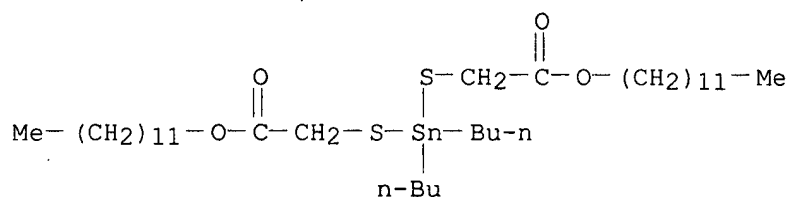
CN Acetic acid, mercapto-, isooctyl ester (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



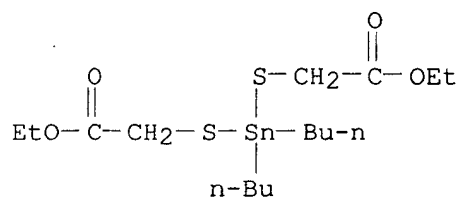
L55 ANSWER 30 OF 38 HCAPLUS COPYRIGHT 2002 ACS  
AN 1974:15890 HCAPLUS  
DN 80:15890  
TI Organotin mercapto acid ester, stabilizer for poly(vinyl  
chloride) resins  
IN Ludwig, Jerome H.  
PA Dart Industries Inc.  
SO Ger. Offen., 33 pp.  
CODEN: GWXXBX  
DT **Patent**  
LA German  
IC C07F; C08F  
CC 36-6 (Plastics Manufacture and Processing)  
Section cross-reference(s): 29

FAN.CNT 1

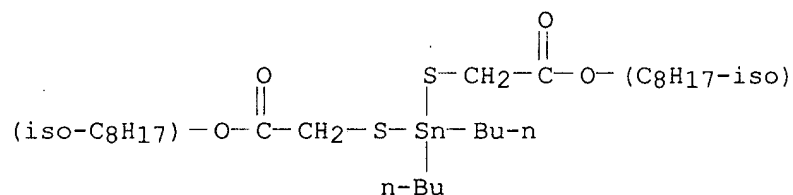
|    | PATENT NO.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | KIND | DATE     | APPLICATION NO. | DATE     |
|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|----------|-----------------|----------|
| PI | DE 2209336                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | A1   | 19730906 | DE 1972-2209336 | 19720223 |
|    | DE 2209336                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | B2   | 19800925 |                 |          |
|    | DE 2209336                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | C3   | 19840301 |                 |          |
| AB | The title compds., useful as heat stabilizers for PVC<br>[9002-86-2] are prep'd. continuously and in high purity by reaction of<br>R2SnO with alkyl mercaptoalkanoates in a heat exchanger. Thus, addn. of a<br>mixture of 62.25 g dibutyltin-oxide-[818-08-6] and 105.34 g isooctyl<br>mercaptoacetate [25103-09-7] at 4 ml/min to a zone heated at<br>150.deg. gives diisooctyl [(dibutylstannylene)dithio]diacetate (I) [<br>25168-24-5], impurity content 0.058%, flash point (ASTM D 92-66)<br>218.deg., compared with 1.88% and 171.deg., resp., for conventionally<br>prep'd. I. |      |          |                 |          |
| ST | heat stabilizer PVC; tin alkyoxide reaction; mercaptoalkanoate<br>alkyl reaction; acetate mercapto reaction; oxide alkyltin reaction                                                                                                                                                                                                                                                                                                                                                                                                                                                    |      |          |                 |          |
| IT | Condensation reaction<br>(of dialkyltin oxides with alkyl mercaptoacetates, process for<br>continuous)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |      |          |                 |          |
| IT | 9002-86-2<br>RL: USES (Uses)<br>(heat stabilizers for, manuf. of)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |      |          |                 |          |
| IT | 20004-12-0 25074-09-3 25168-24-5<br>26401-97-8 50938-38-0<br>RL: MOA (Modifier or additive use); USES (Uses)<br>(heat stabilizers, for PVC, continuous process for manuf. of)                                                                                                                                                                                                                                                                                                                                                                                                           |      |          |                 |          |
| IT | 818-08-6 870-08-6<br>RL: RCT (Reactant)<br>(reaction of, with dialkyl mercaptoacetates, process for continuous)                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |      |          |                 |          |
| IT | 623-51-8 3746-39-2 25103-09-7<br>RL: RCT (Reactant)<br>(reaction of, with dialkyltin oxides, process for continuous)                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |      |          |                 |          |
| IT | 68-11-1, reactions<br>RL: RCT (Reactant)<br>(with dialkyltin oxides, process for continuous)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |      |          |                 |          |
| IT | 20004-12-0 25074-09-3 25168-24-5<br>26401-97-8 50938-38-0<br>RL: MOA (Modifier or additive use); USES (Uses)<br>(heat stabilizers, for PVC, continuous process for manuf. of)                                                                                                                                                                                                                                                                                                                                                                                                           |      |          |                 |          |
| RN | 20004-12-0 HCAPLUS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |      |          |                 |          |
| CN | 8-Oxa-3,5-dithia-4-stannaeicosanoic acid, 4,4-dibutyl-7-oxo-, dodecyl<br>ester (9CI) (CA INDEX NAME)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |      |          |                 |          |



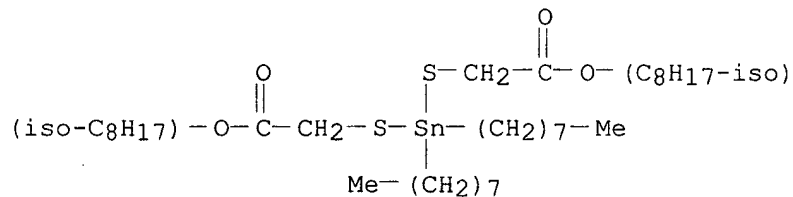
RN 25074-09-3 HCAPLUS

CN 8-Oxa-3,5-dithia-4-stannadecanoic-acid, 4,4-dibutyl-7-oxo-, ethyl ester  
(9CI) (CA INDEX NAME)

RN 25168-24-5 HCAPLUS

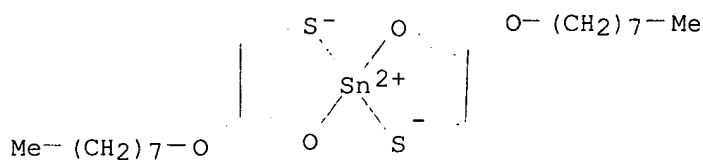
CN Acetic acid, 2,2'-[(dibutylstannylene)bis(thio)]bis-, diisooctyl ester  
(9CI) (CA INDEX NAME)

RN 26401-97-8 HCAPLUS

CN Acetic acid, 2,2'-[(dioctylstannylene)bis(thio)]bis-, diisooctyl ester  
(9CI) (CA INDEX NAME)

RN 50938-38-0 HCAPLUS

CN Tin, bis(octyl mercaptoacetato-O',S)-, (T-4)- (9CI) (CA INDEX NAME)



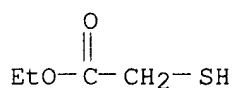
IT 623-51-8 3746-39-2 25103-09-7

RL: RCT (Reactant)

(reaction of, with dialkyltin oxides, process for continuous)

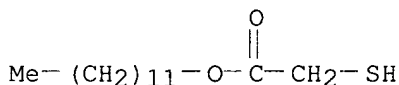
RN 623-51-8 HCAPLUS

CN Acetic acid, mercapto-, ethyl ester (7CI, 8CI, 9CI) (CA INDEX NAME)



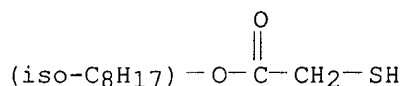
RN 3746-39-2 HCAPLUS

CN Acetic acid, mercapto-, dodecyl ester (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



RN 25103-09-7 HCAPLUS

CN Acetic acid, mercapto-, isooctyl ester (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



L55 ANSWER 31 OF 38 HCAPLUS COPYRIGHT 2002 ACS

AN 1973:505823 HCAPLUS

DN 79:105823

TI Organotin compounds for stabilizing polymers

IN Coates, Harold; Collins, John Desmond; Siddiqui, Iftikhar Hussain

PA Albright and Wilson Ltd.

SO Ger. Offen., 49 pp.

CODEN: GWXXBX

DT Patent

LA German

IC C07F; C08K; C08F

CC 36-2 (Plastics Manufacture and Processing)

Section cross-reference(s): 29

FAN.CNT 2

|    | PATENT NO. | KIND | DATE     | APPLICATION NO. | DATE     |
|----|------------|------|----------|-----------------|----------|
| PI | DE 2256613 | A1   | 19730524 | DE 1972-2256613 | 19721117 |
|    | GB 1415492 | A    | 19751126 | GB 1971-53892   | 19721116 |

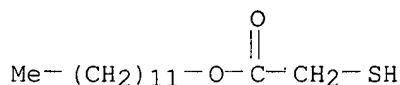
KATHLEEN FULLER EIC 1700/LAW LIBRARY 308-4290

*Not reviewed*

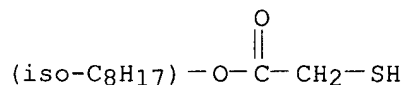


|                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |          |                |              |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------------|--------------|
| ES 408765          | A1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 19760601 | ES 1972-408765 | 19721118     |
| BE 791628          | A1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 19730316 | BE 1972-124369 | 19721120     |
| NL 7215667         | A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 19730522 | NL 1972-15667  | 19721120     |
| FR 2160680         | A1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 19730629 | FR 1972-41189  | 19721120     |
| FR 2160680         | B1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 19771230 |                |              |
| JP 48062845        | A2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 19730901 | JP 1972-115739 | 19721120     |
| AU 7249034         | A1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 19740523 | AU 1972-49034  | 19721120     |
| AT 320669          | B                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 19750225 | AT 1972-9866   | 19721120     |
| US 4020090         | A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 19770426 | US 1974-525119 | 19741119 <-- |
| PRAI GB 1971-53892 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 19711119 |                |              |
| US 1972-308018     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 19721120 |                |              |
| AB                 | The title stabilizers (25 prepd., 12 tested), e.g. I, R = di-Bu or dioctyl, which contained S and which were used to stabilize <b>PVC</b> [9002-86-2], were prepd. by reaction of dibutyltin oxide or dioctyltin oxide with certain aldehydes or ketones and with a mixt. of certain mercaptans and (or) mercapto acids. The resulting <b>compn.</b> could also be further treated with one of the compds. HO <sub>2</sub> CCH:CHCOSH <sub>2</sub> CO <sub>2</sub> Q, HS(CH <sub>2</sub> ) <sub>n</sub> CO <sub>2</sub> Q, and HO <sub>2</sub> CCH:CHCO <sub>2</sub> Q, Q = alkyl, cycloalkyl, aryl. Thus, a mixt. of .beta.-mercaptopropionic acid 0.2, lauryl thioglycolate 0.2, dodecyl aldehyde 0.2, and dibutyltin oxide 0.1 mole was mixed with 0.1 g p-toluenesulfonic acid and 3.6 ml. water and the total mixt. was refluxed to give light yellow compd. (I,R = Bu) [ <b>41376-60-7</b> ] contg. 9.4% Sn. A molding prepared from C D 55/9 [9002-86-2] 100, Plastilube 30 1 and prepared stabilizer 2 parts had Gardner color value 1 after heating at 190.deg. for 10 mins compared with 2 for a sample similarly prepared by using Mellite 31 [dibutyltin bis(isooctyl thioglycolate)] as the stabilizer. |          |                |              |
| ST                 | tin organo stabilizer <b>PVC</b> ; thioglycolate stabilizer <b>PVC</b> ; mercaptopropionate stabilizer <b>PVC</b> ; aldehyde dodecyl <b>PVC</b> stabilizer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |                |              |
| IT                 | 818-08-6 870-08-6<br>RL: RCT (Reactant)<br>(reaction of, with aldehydes and mercapto derivs.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |          |                |              |
| IT                 | 4265-54-7<br>RL: RCT (Reactant)<br>(reaction of, with cetylalc. and dioctyltin oxide)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |          |                |              |
| IT                 | 36653-82-4<br>RL: RCT (Reactant)<br>(reaction of, with cyclohexylidene by mercaptoacetic acid and dioctyltin oxide)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |          |                |              |
| IT                 | 112-54-9 <b>3746-39-2</b><br>RL: RCT (Reactant)<br>(reaction of, with dialkyltin oxide and mercaptopropionic acid)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |          |                |              |
| IT                 | 107-96-0<br>RL: RCT (Reactant)<br>(reaction of, with dialkyltin oxide and thioglycolates)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |          |                |              |
| IT                 | 141-97-9 30137-97-4 50674-15-2 50674-16-3 50674-17-4<br>RL: RCT (Reactant)<br>(reaction of, with dibutyltin oxide and mercapto derivs.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |          |                |              |
| IT                 | 50828-60-9 50828-61-0<br>RL: RCT (Reactant)<br>(reaction of, with dibutyltin oxide and octyl maleate)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |          |                |              |
| IT                 | <b>25103-09-7 30374-01-7</b><br>RL: RCT (Reactant)<br>(reaction of, with dibutyltin oxide and salicylaldehyde)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |          |                |              |
| IT                 | 50674-14-1<br>RL: RCT (Reactant)<br>(reaction of, with dioctyltin oxide and hydroxybenzaldehyde derivs.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |          |                |              |
| IT                 | 50828-68-7 50828-69-8<br>RL: RCT (Reactant)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |                |              |

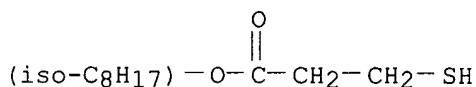
- (reaction of, with dioctyltin oxide and mercaptan derivs.)
- IT 20292-00-6  
RL: RCT (Reactant)
- (reaction of, with dioctyltin oxide and mercapto derivs.)
- IT 112-55-0 31335-29-2  
RL: RCT (Reactant)
- (reaction of, with dioctyltin oxide and salicylaldehyde)
- IT 3746-40-5  
RL: RCT (Reactant)
- (reaction of, with maleic anhydride)
- IT 9002-86-2  
RL: USES (Uses)
- (stabilizers for, organotin compds. as)
- IT 41376-60-7 50674-07-2 50674-08-3  
50674-09-4 50674-10-7 50674-11-8  
50674-12-9 50674-13-0 50828-62-1  
50828-63-2 50828-64-3 50828-65-4  
50828-66-5 50828-67-6 50828-70-1  
50828-71-2 50828-72-3 50828-73-4  
50828-74-5 50828-75-6 50828-76-7  
50928-96-6  
RL: MOA (Modifier or additive use); USES (Uses)
- (stabilizers, for PVC)
- IT 90-02-8, reactions  
RL: RCT (Reactant)
- (with dibutyltin oxide and alkyl mercaptopropionates)
- IT 108-31-6, reactions  
RL: RCT (Reactant)
- (with nonyl thioglycolate)
- IT 3746-39-2  
RL: RCT (Reactant)
- (reaction of, with dialkyltin oxide and mercaptopropionic acid)
- RN 3746-39-2 HCAPLUS
- CN Acetic acid, mercapto-, dodecyl ester (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



- IT 25103-09-7 30374-01-7  
RL: RCT (Reactant)
- (reaction of, with dibutyltin oxide and salicylaldehyde)
- RN 25103-09-7 HCAPLUS
- CN Acetic acid, mercapto-, isooctyl ester (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



- RN 30374-01-7 HCAPLUS
- CN Propanoic acid, 3-mercapto-, isooctyl ester (9CI) (CA INDEX NAME)



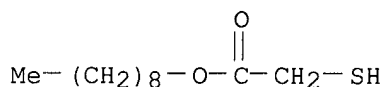
IT 3746-40-5

RL: RCT (Reactant)

(reaction of, with maleic anhydride)

RN 3746-40-5 HCAPLUS

CN Acetic acid, mercapto-, nonyl ester (7CI, 8CI, 9CI) (CA INDEX NAME)



IT 41376-60-7 50674-07-2 50674-08-3

50674-09-4 50674-10-7 50674-11-8

50674-12-9 50674-13-0 50828-62-1

50828-63-2 50828-64-3 50828-65-4

50828-66-5 50828-67-6 50828-70-1

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50828-74-5 50828-75-6 50828-76-7

50928-96-6

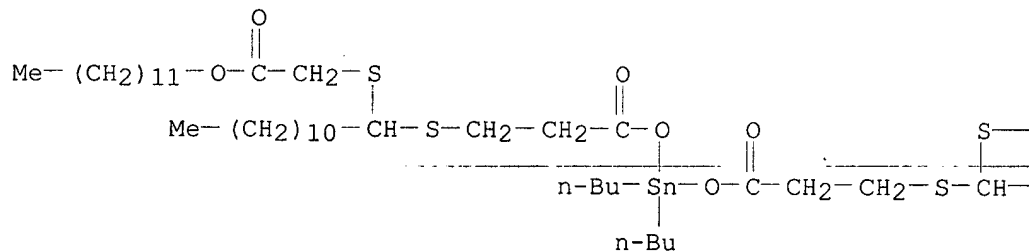
RL: MOA (Modifier or additive use); USES (Uses)

(stabilizers, for PVC)

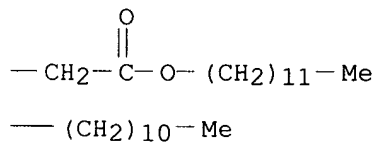
RN 41376-60-7 HCAPLUS

CN 13,22,24,33-Tetraoxa-16,18,28,30-tetrathia-23-stannapentatetracontane,  
23,23-dibutyl-14,21,25,32-tetraoxo-17,2a-diundecyl- (9CI) (CA INDEX NAME)

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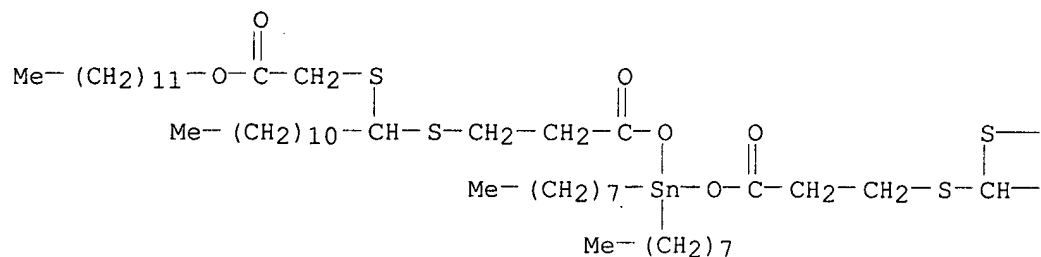


RN 50674-07-2 HCAPLUS

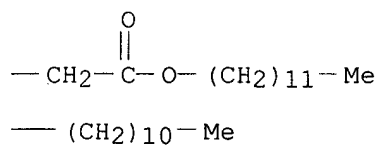
CN 9,11-Dioxa-3,5,15,17-tetrathia-10-stannanonadecanedioic acid,  
10,10-dioctyl-8,12-dioxo-4,16-diundecyl-, didodecyl ester (9CI) (CA INDEX NAME)

NAME )

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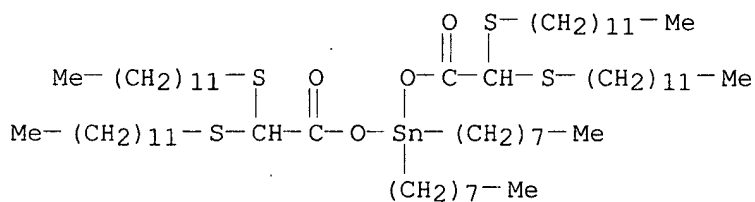


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RN 50674-08-3 HCAPLUS

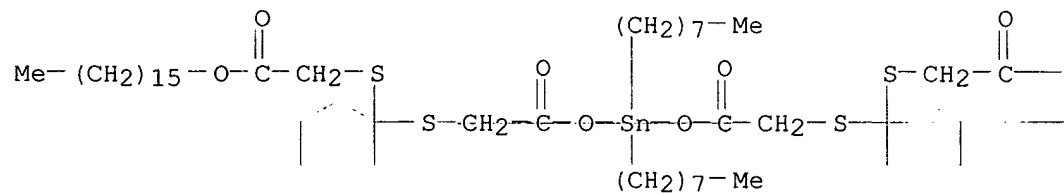
CN 15,17-Dioxa-12,20-dithia-16-stannadotriacontane, 13,19-bis(dodecylthio)-  
16,16-dioctyl-14,18-dioxo- (9CI) (CA INDEX NAME)



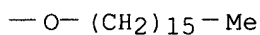
RN 50674-09-4 HCAPLUS

|    |                                                                                                                           |                 |
|----|---------------------------------------------------------------------------------------------------------------------------|-----------------|
| CN | Acetic acid, 2,2'-[(dioctylstannylene)bis[oxy(2-oxo-2,1-ethanediy)]thiocyclohexylidenethio]]bis-, dihexadecyl ester (9CI) | (CA INDEX NAME) |
|----|---------------------------------------------------------------------------------------------------------------------------|-----------------|

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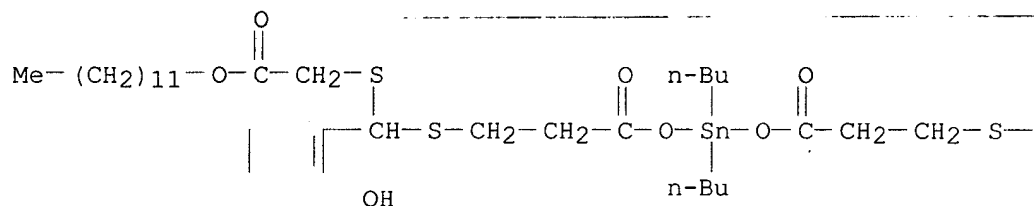
PAGE 1-B



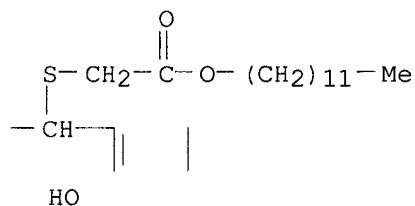
RN 50674-10-7 HCAPLUS

CN 9,11-Dioxa-3,5,15,17-tetrathia-10-stannanonadecanedioic acid,  
10,10-dibutyl-4,16-bis(2-hydroxyphenyl)-8,12-dioxo-, didodecyl ester (9CI)  
(CA INDEX NAME)

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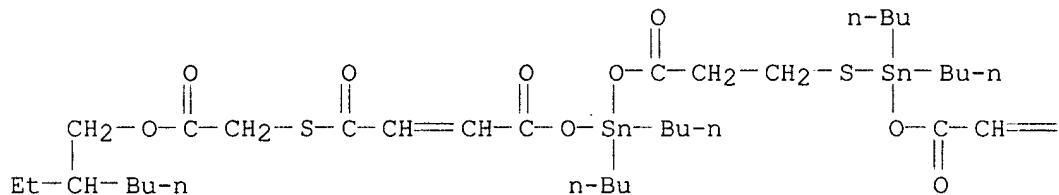
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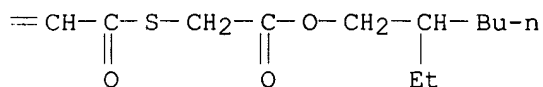
RN 50674-11-8 HCAPLUS

CN 8,10,16-Trioxa-3,14,21-trithia-9,15-distannatricosa-5,18-dienedioic acid,  
9,9,15,15-tetrabutyl-4,7,11,17,20-pentaoxo-, bis(2-ethylhexyl) ester (9CI)  
(CA INDEX NAME)

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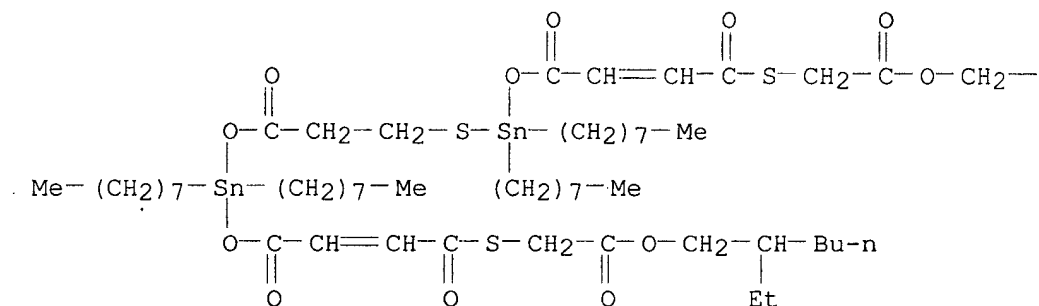
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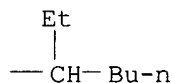
RN 50674-12-9 HCAPLUS

CN 8,10,16-Trioxa-3,14,21-trithia-9,15-distannatricosa-5,18-dienedioic acid,  
9,9,15,15-tetraoctyl-4,7,11,17,20-pentaoxo-, bis(2-ethylhexyl) ester (9CI)  
(CA INDEX NAME)

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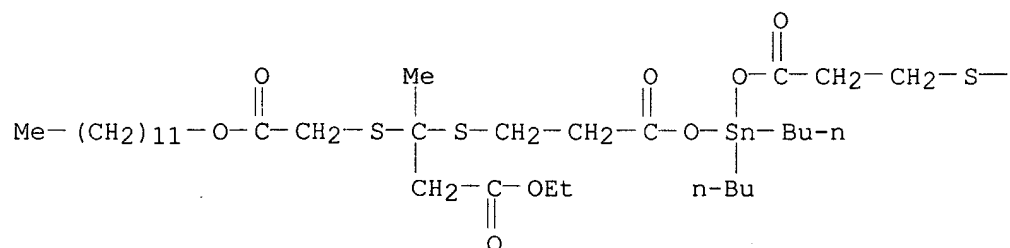
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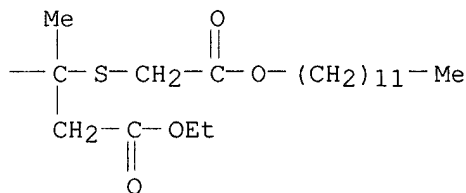
RN 50674-13-0 HCAPLUS

CN 9,11-Dioxa-3,5,15,17-tetrathia-10-stannanonadecanedioic acid,  
10,10-dibutyl-4,16-bis(2-ethoxy-2-oxoethyl)-4,16-dimethyl-8,12-dioxo-,  
didodecyl ester (9CI) (CA INDEX NAME)

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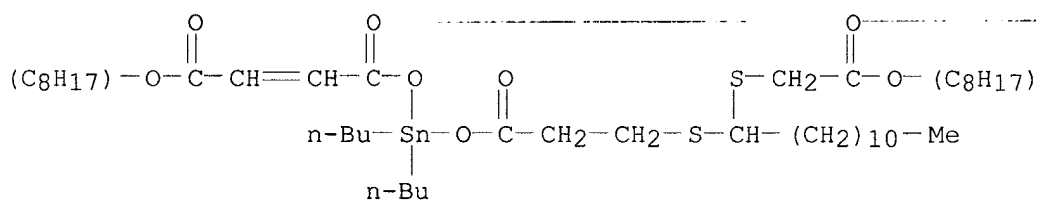


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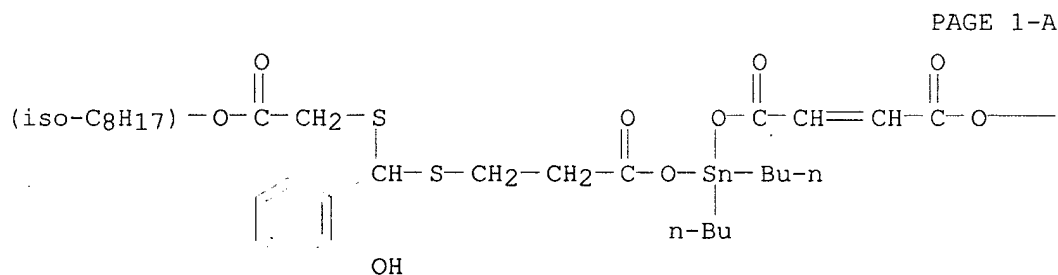
RN 50828-62-1 HCAPLUS

CN 9,11-Dioxa-3,5-dithia-10-stannapentadec-13-enedioic acid,  
 10,10-dibutyl-8,12-dioxo-4-undecyl-, diisooctyl ester, (Z)- (9CI) (CA  
 INDEX NAME)



RN 50828-63-2 HCAPLUS

CN 9,11-Dioxa-3,5-dithia-10-stannapentadec-13-enedioic acid,  
 10,10-dibutyl-4-(2-hydroxyphenyl)-8,12-dioxo-, diisooctyl ester, (Z)-  
 (9CI) (CA INDEX NAME)



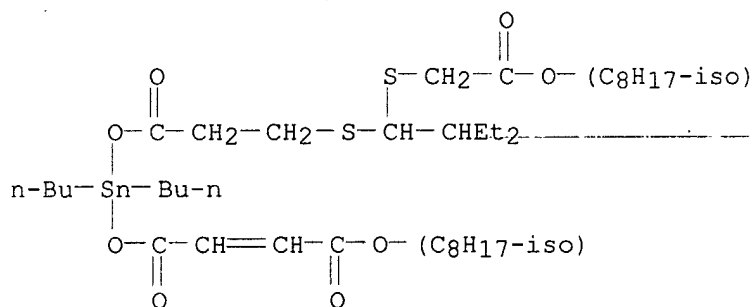
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- (C<sub>8</sub>H<sub>17</sub>-iso)

RN 50828-64-3 HCAPLUS

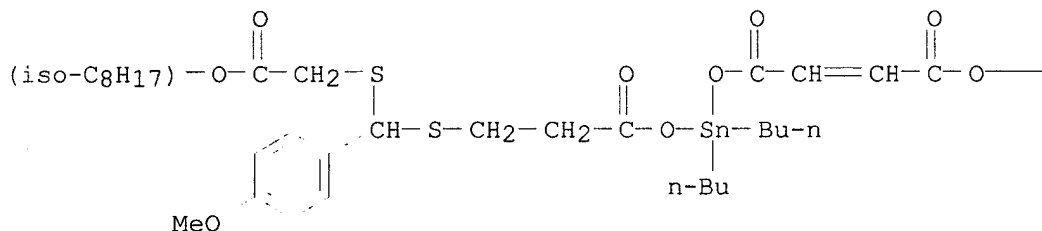
CN 9,11-Dioxa-3,5-dithia-10-stannapentadec-13-enedioic acid,  
 10,10-dibutyl-4-(1-ethylpropyl)-8,12-dioxo-, diisooctyl ester, (Z)- (9CI)  
 (CA INDEX NAME)



RN 50828-65-4 HCAPLUS

CN 9,11-Dioxa-3,5-dithia-10-stannapentadec-13-enedioic acid,  
 10,10-dibutyl-4-(4-methoxyphenyl)-8,12-dioxo-, diisooctyl ester, (Z)-  
 (9CI) (CA INDEX NAME)

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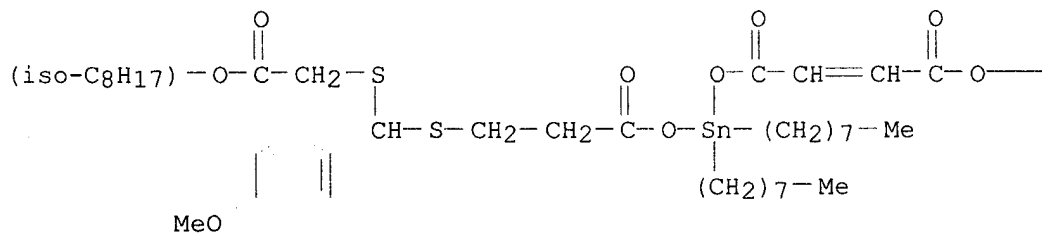
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— (C<sub>8</sub>H<sub>17</sub>-iso)

RN 50828-66-5 HCAPLUS

CN 9,11-Dioxa-3,5-dithia-10-stannapentadec-13-enedioic acid,  
 4-(4-methoxyphenyl)-10,10-dioctyl-8,12-dioxo-, diisooctyl ester, (Z)-  
 (9CI) (CA INDEX NAME)

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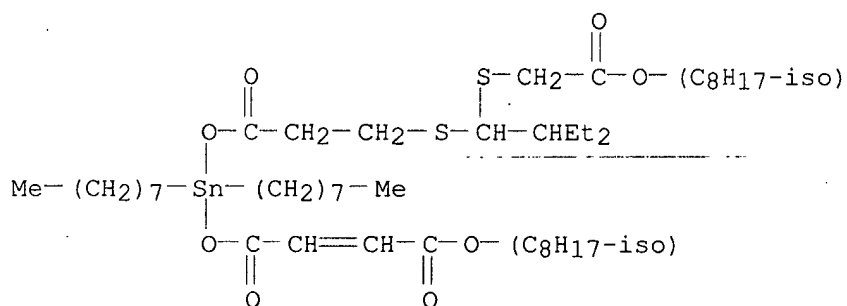


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— (C<sub>8</sub>H<sub>17</sub>-iso)

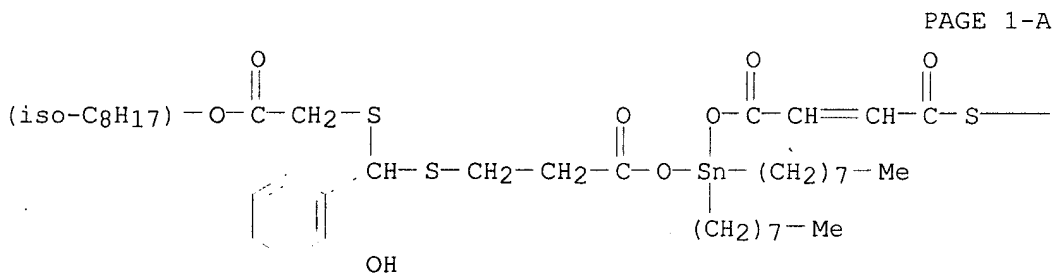
RN 50828-67-6 HCAPLUS

CN 9,11-Dioxa-3,5-dithia-10-stannapentadec-13-enedioic acid,  
4-(1-ethylpropyl)-10,10-dioctyl-8,12-dioxo-, diisooctyl ester, (Z)- (9CI)  
(CA INDEX NAME)

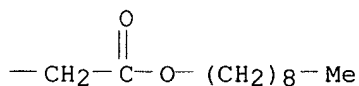


RN 50828-70-1 HCAPLUS

CN 9,11-Dioxa-3,5,16-trithia-10-stannaoctadec-13-enedioic acid,  
4-(2-hydroxyphenyl)-10,10-dioctyl-8,12,15-trioxo-, 1-isooctyl 18-nonyl  
ester, (Z)- (9CI) (CA INDEX NAME)

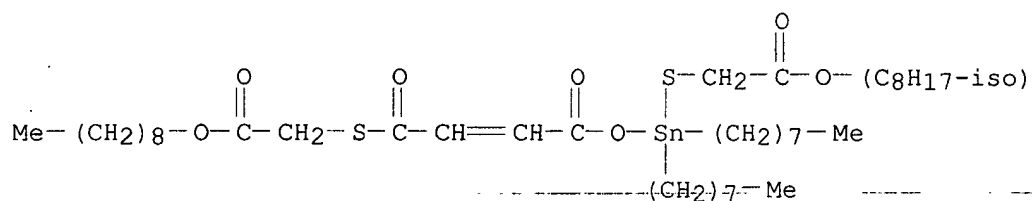


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RN 50828-71-2 HCAPLUS

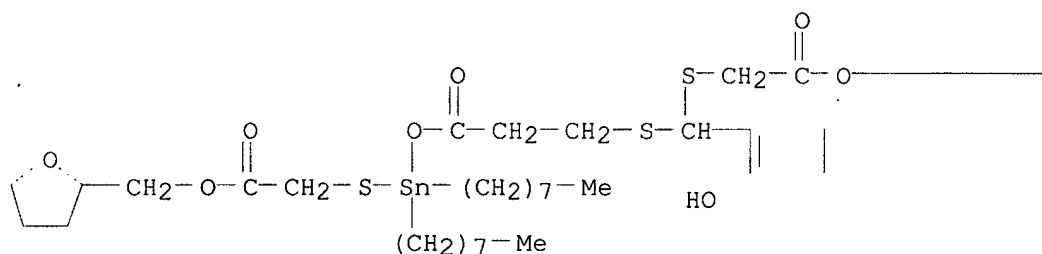
CN 5-Oxa-3,10-dithia-4-stannadodec-7-enedioic acid, 4,4-dioctyl-6,9-dioxo-,  
1-isooctyl 12-nonyl ester, (Z)- (9CI) (CA INDEX NAME)



RN 50828-72-3 HCAPLUS

CN 5-Oxa-3,9,11-trithia-4-stannatridecanedioic acid, 10-(2-hydroxyphenyl)-4,4-di-octyl-6-oxo-, 13-isooctyl 1-[(tetrahydro-2-furanyl)methyl] ester (9CI)  
(CA INDEX NAME)

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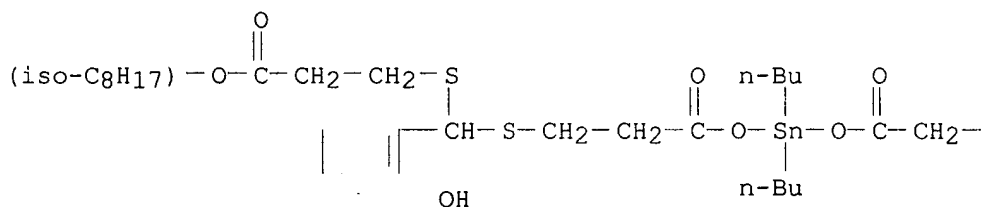
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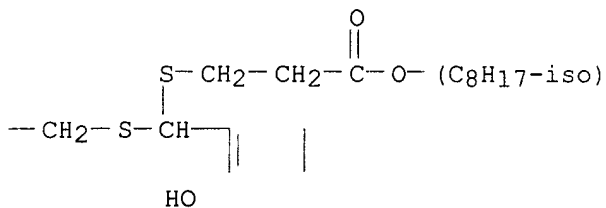
RN 50828-73-4 HCAPLUS

CN 10,12-Dioxa-4,6,16,18-tetrathia-11-stannaheneicosanedioic acid, 11,11-dibutyl-15,17-bis(2-hydroxyphenyl)-9,13-dioxo-, diisooctyl ester (9CI) (CA INDEX NAME)

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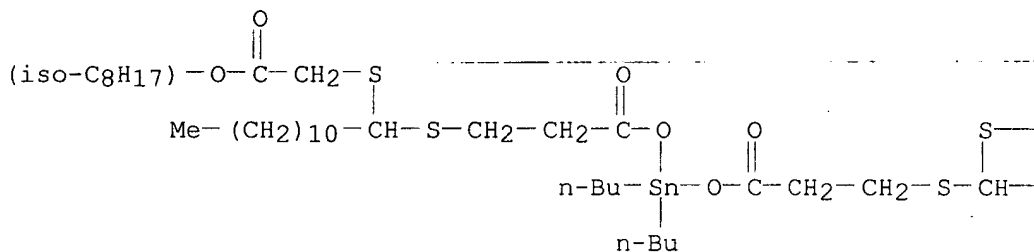
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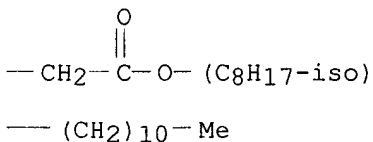
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CN 9,11-Dioxa-3,5,15,17-tetrathia-10-stannanonadecanedioic acid,  
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 INDEX NAME)

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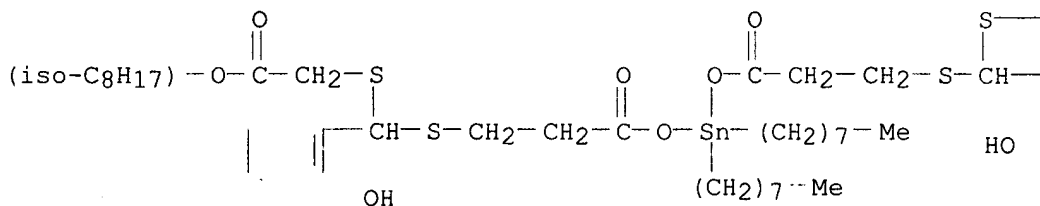
PAGE 1-B



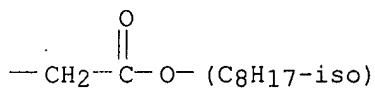
RN 50828-75-6 HCAPLUS

CN 9,11-Dioxa-3,5,15,17-tetrathia-10-stannanonadecanedioic acid,  
 4,16-bis(2-hydroxyphenyl)-10,10-dioctyl-8,12-dioxo-, diisooctyl ester  
 (9CI) (CA INDEX NAME)

PAGE 1-A

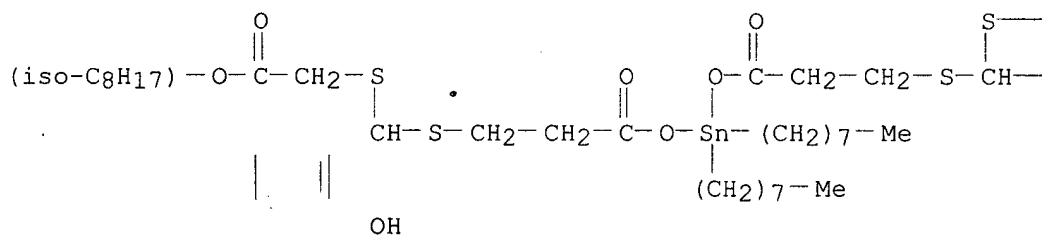


PAGE 1-B

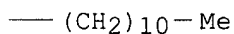
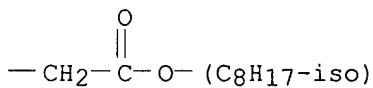


|    |                                                                                                                                                                      |         |
|----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| RN | 50828-76-7                                                                                                                                                           | HCAPLUS |
| CN | 9,11-Dioxa-3,5,15,17-tetrathia-10-stannanonadecanedioic acid,<br>4-(2-hydroxyphenyl)-10,10-dioctyl-8,12-dioxo-16-undecyl-, diisooctyl ester<br>(9CI) (CA INDEX NAME) |         |

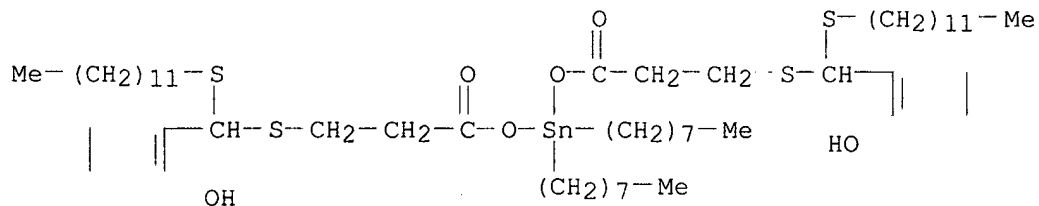
PAGE 1-A



PAGE 1-B

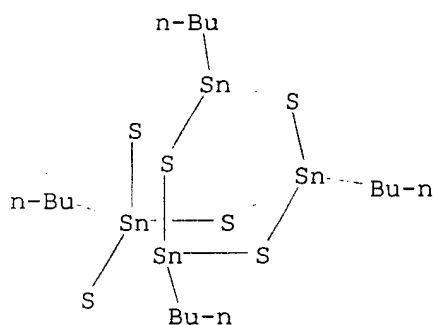


```
RN      50928-96-6  HCAPLUS
CN      Phenol, 2,2'-[1,13-bis(dodecylthio)-7,7-dioctyl-5,9-dioxo-6,8-dioxa-2,12-
        dithia-7-stannatridecane-1,13-diyl]bis- (9CI)  (CA INDEX NAME)
```

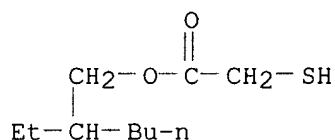


L55 ANSWER 32 OF 38 HCAPLUS COPYRIGHT 2002 ACS  
AN 1973:96169 HCAPLUS  
DN 78:96169

TI New results on the migration of organotin stabilizers in food  
 AU Woggon, H.; Uhde, W. J.; Saeuberlich, H.  
 CS Zentralinst. Ernaehr., Akad. Wiss., Potsdam-Rehbruecke, E. Ger.  
 SO Ernaehrungsforschung (1972), 16(4), 645-55  
 CODEN: ERNFA7  
 DT Journal  
 LA German  
 CC 17-2 (Foods)  
 AB The migration of di-n-octyltin esters, monobutylthiostannic acid and monobutyltin esters (poly(vinyl chloride) stabilizers) in aq. and fatty foods was studied. The di-n-octyltin esters migrate unchanged, whereas for the others, mainly decompn. products were found. The migration of the toxic decompn. product 2-ethylhexyl thioglycolate was very low.  
 ST PVC stabilizer food; tin alkyl plastic food; alkyltin plastic food  
 IT Packaging materials  
 (for food, poly(vinyl chloride) tin stabilizers migration from)  
 IT Food  
 (packaging material for, poly(vinyl chloride) tin stabilizers migration from)  
 IT 1118-46-3 6588-41-6 7659-86-1 15571-58-1  
 39315-56-5 40933-07-1 40968-77-2  
 RL: BIOL (Biological study)  
 (poly(vinyl chloride) stabilizer, migration into food)  
 IT 9002-86-2  
 RL: BIOL (Biological study)  
 (tin stabilizers for, food migration of)  
 IT 6588-41-6 7659-86-1 15571-58-1  
 39315-56-5 40933-07-1 40968-77-2  
 RL: BIOL (Biological study)  
 (poly(vinyl chloride) stabilizer, migration into food)  
 RN 6588-41-6 HCAPLUS  
 CN 2,4,6,8,9,10-Hexathia-1,3,5,7-tetrastannatricyclo[3.3.1.1<sup>3,7</sup>]decane,  
 1,3,5,7-tetrabutyl- (9CI) (CA INDEX NAME)

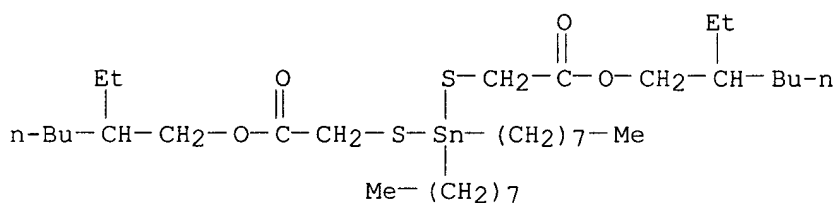


RN 7659-86-1 HCAPLUS  
 CN Acetic acid, mercapto-, 2-ethylhexyl ester (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



RN 15571-58-1 HCAPLUS

CN 8-Oxa-3,5-dithia-4-stannatetradecanoic acid, 10-ethyl-4,4-dioctyl-7-oxo-, 2-ethylhexyl ester (9CI) (CA INDEX NAME)



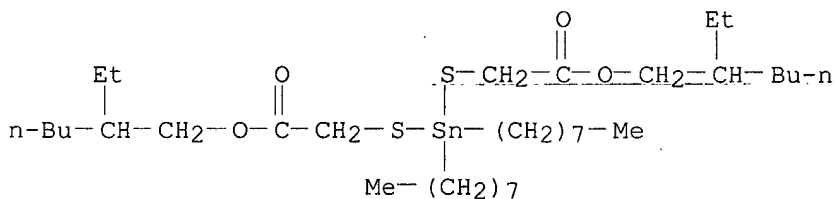
RN 39315-56-5 HCAPLUS

CN 5,7,12-Trioxa-6-stannaoctadeca-2,9-dienoic acid, 14-ethyl-6,6-dioctyl-4,8,11-trioxo-, 2-ethylhexyl ester, mixt. with 2-ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate (9CI) (CA INDEX NAME)

CM 1

CRN 15571-58-1

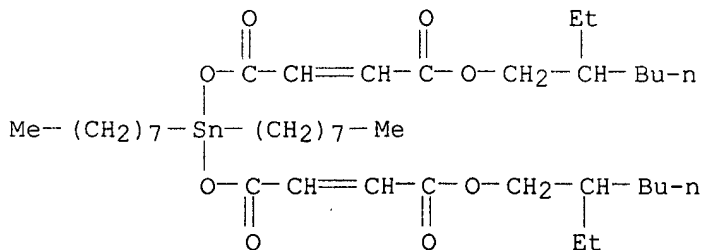
CMF C36 H72 O4 S2 Sn



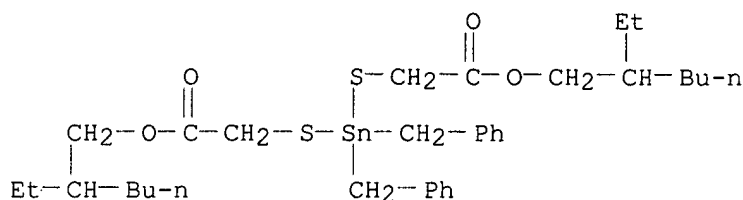
CM 2

CRN 10039-33-5

CMF C40 H72 O8 Sn



RN 40933-07-1 HCAPLUS  
 CN Acetic acid, 2,2'-[bis(phenylmethyl)stannylenebis(thio)]bis-,  
 bis(2-ethylhexyl) ester (9CI) (CA INDEX NAME)



RN 40968-77-2 HCAPLUS

L55 ANSWER 33 OF 38 HCAPLUS COPYRIGHT 2002 ACS  
 AN 1972:435707 HCAPLUS  
 DN 77:35707  
 TI Stabilization of poly(vinyl chloride)  
 IN Oakes, Vincent; Hutton, Ronald E.; Iles, Brian R.  
 PA Interstab Ltd.  
 SO Ger. Offen., 10 pp.  
 CODEN: GWXXBX

DT Patent

LA German

IC C08F

CC 36-6 (Plastics Manufacture and Processing)

FAN.CNT 1

|      | PATENT NO.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | KIND       | DATE       | APPLICATION NO. | DATE       |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|------------|-----------------|------------|
| PI   | DE 2149323                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |            | 19720406   |                 |            |
| PRAI | GB 1970-46923                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |            | 19701002   |                 |            |
| AB   | Poly(vinyl chloride) (I) [9002-86-2] was stabilized against decompn. by heat and light by addn. of mixts. contg. dibutyltin sulfide (II) [4253-22-9] and (or) dioctyltin sulfide [3572-47-2], and maleates, e.g. methyl hydrogen maleate (III) [3052-50-4], or thioglycolates, e.g. isooctyl thioglycolate [25103-09-7], or isooctyl .beta.-mercaptopropionate [30374-01-7]. Thus, I 100, ester plasticizer 1, and stabilizer mixt. 2 parts (1% II and 1% III, based on I) were homogenized at 155.deg. and extruded to give films of 1.27 mm thickness. Colorless film samples on heating in air at 185.deg. turned bright yellow within 60 min, as compared with 30 min for II-free samples and 20 min for III-free samples. |            |            |                 |            |
| ST   | alkyltin sulfide heat stabilizer; maleate heat stabilizer; thioglycolate heat stabilizer; mercaptopropionate heat stabilizer; heat stabilizer PVC; light stabilizer PVC; tin sulfide heat stabilizer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |            |            |                 |            |
| IT   | Heat stabilizers<br>Light stabilizers<br>(tin mercaptides-maleic acid esters, for PVC)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |            |            |                 |            |
| IT   | 621-13-6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 2424-62-6  | 2915-53-9  | 3052-50-4       | 3572-47-2  |
|      | 4253-22-9                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 7423-42-9  | 25103-09-7 | 25168-24-5      |            |
|      | 27309-95-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 30374-01-7 | 37265-25-1 | 37265-42-2      | 38463-87-5 |
|      | RL: MOA (Modifier or additive use); USES (Uses)<br>(heat stabilizers, for PVC)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |            |            |                 |            |
| IT   | 9002-86-2<br>RL: USES (Uses)<br>(heat- and light-stabilizers for, tin mercaptides and maleic acid esters as)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |            |            |                 |            |

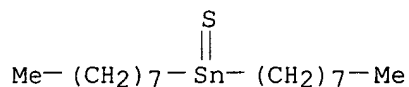
IT 3572-47-2 4253-22-9 25103-09-7

25168-24-5 30374-01-7

RL: MOA (Modifier or additive use); USES (Uses)  
(heat stabilizers, for PVC)

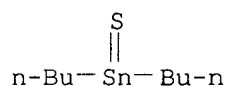
RN 3572-47-2 HCAPLUS

CN Stannane, dioctylthio- (8CI, 9CI) (CA INDEX NAME)



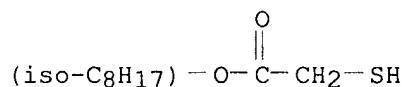
RN 4253-22-9 HCAPLUS

CN Stannane, dibutylthio- (8CI, 9CI) (CA INDEX NAME)



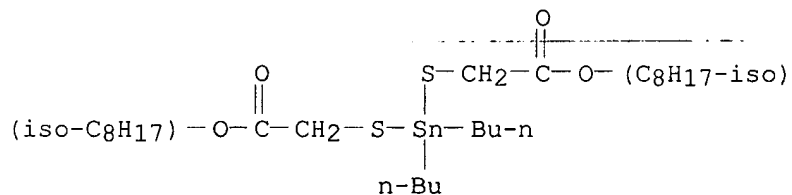
RN 25103-09-7 HCAPLUS

CN Acetic acid, mercapto-, isooctyl ester (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



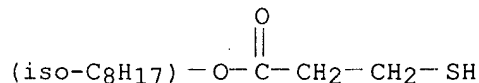
RN 25168-24-5 HCAPLUS

CN Acetic acid, 2,2'-[(dibutylstannylene)bis(thio)]bis-, diisooctyl ester (9CI) (CA INDEX NAME)



RN 30374-01-7 HCAPLUS

CN Propanoic acid, 3-mercapto-, isooctyl ester (9CI) (CA INDEX NAME)



L55 ANSWER 34 OF 38 HCAPLUS COPYRIGHT 2002 ACS

AN 1972:141858 HCAPLUS

DN 76:141858

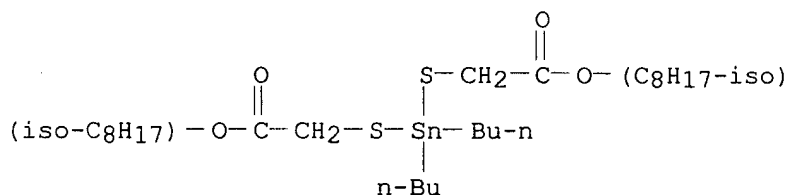
TI Organotin compounds as primary stabilizers for halogen-containing resins

KATHLEEN FULLER EIC 1700/LAW LIBRARY 308-4290



IN Wilkins, Anthony J.; Hoye, Peter A. T.  
PA Albright and Wilson Ltd. \_\_\_\_\_  
SO Brit., 5 pp.  
CODEN: BRXXAA  
DT **Patent**  
LA English  
IC C07F; C08F  
CC 36 (Plastics Manufacture and Processing)  
FAN.CNT 1

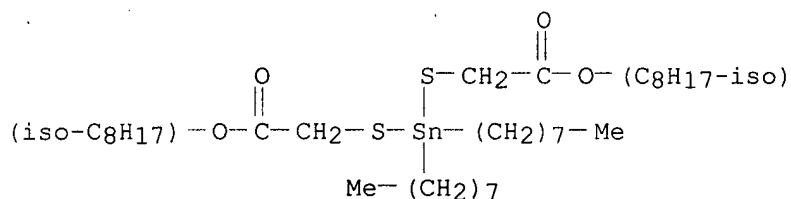
|    | PATENT NO.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | KIND | DATE     | APPLICATION NO. | DATE     |
|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|----------|-----------------|----------|
| PI | GB 1263476                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |      | 19720209 | GB 1968-32690   | 19690709 |
| AB | <p>Synergistic 2 part stabilizer <b>compns.</b> comprise diorganotin S,S'-bis(mercaptocarboxylate) and 5-50% (based on the 1st stabilizer) diorganotin S,O-mercaptocarboxylate. Thus, dibutyltin S,S'-bis(isooctylglycolate) (I) [25168-24-5] 1.5 and dibutyltin S,O-thioglycolate (II) [78-20-6] 0.5 were milled in poly(vinyl chloride) [9002-86-2] 100 parts. When aged in air 200.deg. the colorless product began to turn brown within 20-5 min, while a PVC mixed with 20 parts I turned yellow in &lt;5 min, and a 2:100 II-PVC mixt. was pale brown before aging.</p> |      |          |                 |          |
| ST | organotin mercaptocarboxylate PVC stabilizer; tin mercaptocarboxylate PVC stabilizer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |      |          |                 |          |
| IT | 9002-86-2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |      |          |                 |          |
|    | <p>RL: USES (Uses)</p> <p>(synergistic stabilizer <b>compns.</b> for, diorganotin S,S'-bis(mercaptocarboxylate)-diorganotin S,O-mercaptocarboxylate as)</p>                                                                                                                                                                                                                                                                                                                                                                                                                   |      |          |                 |          |
| IT | 870-08-6 25168-24-5 26401-97-8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |      |          |                 |          |
|    | <p>RL: USES (Uses)</p> <p>(synergistic stabilizer <b>compns.</b> from diorganotin S,O-mercaptocarboxylates and, for poly(vinyl chloride))</p>                                                                                                                                                                                                                                                                                                                                                                                                                                 |      |          |                 |          |
| IT | 68-11-1, uses and miscellaneous 78-20-6 25103-09-7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |      |          |                 |          |
|    | 36460-46-5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |      |          |                 |          |
|    | <p>RL: USES (Uses)</p> <p>(synergistic stabilizer <b>compns.</b> from diorganotin S,S'-bis(mercaptocarboxylate) and, for poly(vinyl chloride))</p>                                                                                                                                                                                                                                                                                                                                                                                                                            |      |          |                 |          |
| IT | 25168-24-5 26401-97-8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |      |          |                 |          |
|    | <p>RL: USES (Uses)</p> <p>(synergistic stabilizer <b>compns.</b> from diorganotin S,O-mercaptocarboxylates and, for poly(vinyl chloride))</p>                                                                                                                                                                                                                                                                                                                                                                                                                                 |      |          |                 |          |
| RN | 25168-24-5 HCAPLUS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |      |          |                 |          |
| CN | Acetic acid, 2,2'-[(dibutylstannylene)bis(thio)]bis-, diisooctyl ester (9CI) (CA INDEX NAME)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |      |          |                 |          |



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RN      26401-97-8  HCAPLUS
CN      Acetic acid, 2,2'-[(dioctylstannylene)bis(thio)]bis-, diisooctyl ester
        (9CI) (CA INDEX NAME)

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IT 78-20-6 25103-09-7 36460-46-5

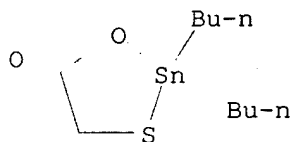
RL: USES (Uses)

(synergistic stabilizer **compns.** from diorganotin

S,S'-bis(mercaptocarboxylate) and, for poly(vinyl chloride))

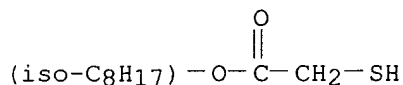
RN 78-20-6 HCAPLUS

|    |                                                                                               |                 |                 |
|----|-----------------------------------------------------------------------------------------------|-----------------|-----------------|
| CN | 1,3,2-Oxathia <span style="text-decoration: underline;">stannolan</span> -5-one, 2,2-dibutyl- | (6CI, 8CI, 9CI) | (CA INDEX NAME) |
|----|-----------------------------------------------------------------------------------------------|-----------------|-----------------|



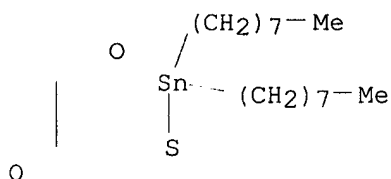
RN 25103-09-7 HCAPLUS

CN Acetic acid, mercapto-, isooctyl ester (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



RN 36460-46-5 HCAPLUS

CN 4H-1,3,2-Oxathiastannin-5(6H)-one, 2,2-dioctyl- (9CI) (CA INDEX NAME)



L55 ANSWER 35 OF 38 HCAPLUS COPYRIGHT 2002 ACS

AN 1971:32349 HCAPLUS

DN 74:32349

TI Stabilization of **vinyl** chloride polymers by organotin compounds

IN Riethmayer, Siegfried

PA Chemische Werke Muenchen Otto Baerlocher G.m.b.H.

SO Ger. Offen., 11 pp.

CODEN: GWXXBX

DT Patent

LA German

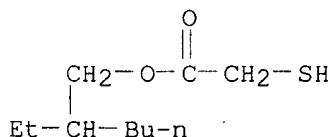
IC C08F

CC 36 (Plastics Manufacture and Processing)

FAN.CNT 1

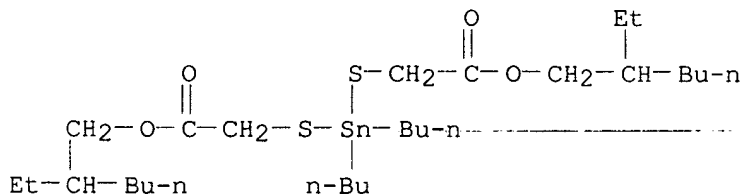
|    | PATENT NO.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | KIND | DATE     | APPLICATION NO. | DATE     |
|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|----------|-----------------|----------|
| PI | DE 1913948                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | A    | 19701112 | DE 1969-1913948 | 19690319 |
| AB | Addn. of 0.2-2.5% [R2Sn(SY)xZy + (HSY)z] (I) or [R3Sn(SY)xZy + (HSY)z] (II) stabilized <b>PVC</b> and <b>vinyl chloride-vinyl</b> acetate copolymers against heat and light. Thus, a mixt. contg. suspension <b>PVC</b> (K value 70) 100.0, glycerol monooleate 1.0, myristyl stearate 0.5, and I (R = Bu, Y = CH2CO2CH2CH2EtBu, Z = OAc, x = y = z = 1) 2.0 parts was plasticized 5 min at 170.degree. to give a film which showed slight darkening or brown discoloration heating 120 or 140 min at 180.degree., resp. Similar stabilizers used were [(n-C8H17)2-Sn(O2CEt)0.3(CH2CH2EtBu)0.7(SCH2CO2CH2CH2EtBu)1.0 + (HSCH2CH2EtBu)0.3] and II (R = Bu, Y = CH2CO2C12H25, Z = OAc, x = 0.8, y = 0.2, z = 0.2).. |      |          |                 |          |
| ST | <b>PVC</b> organotin stabilizers; organotin stabilizers <b>PVC</b> ; stabilizers organotin <b>PVC</b> ; thioglycolates stabilizers <b>PVC</b> ; mercaptans stabilizers <b>PVC</b> ; tin carboxylates stabilizers <b>PVC</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |      |          |                 |          |
| IT | Tin<br>RL: USES (Uses)<br>(stabilizers, for chloroethylene copolymers)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |      |          |                 |          |
| IT | 9002-86-2, uses and miscellaneous 9003-22-9, uses and miscellaneous<br>RL: USES (Uses)<br>(stabilizers for, tin compds. as)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |      |          |                 |          |
| IT | 7659-86-1 10584-98-2 29004-05-5 31511-35-0<br>RL: USES (Uses)<br>(stabilizers, for chloroethylene-copolymers)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |      |          |                 |          |
| IT | 7659-86-1 10584-98-2 29004-05-5<br>RL: USES (Uses)<br>(stabilizers, for chloroethylene copolymers)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |      |          |                 |          |
| RN | 7659-86-1 HCAPLUS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |      |          |                 |          |
| CN | Acetic acid, mercapto-, 2-ethylhexyl ester (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |      |          |                 |          |

not reverse



RN 10584-98-2 HCAPLUS

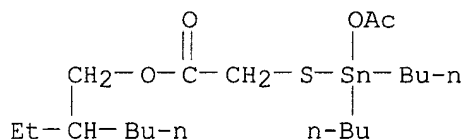
CN 8-Oxa-3,5-dithia-4-stannatetradecanoic acid, 4,4-dibutyl-10-ethyl-7-oxo-, 2-ethylhexyl ester (9CI) (CA INDEX NAME)



RN 29004-05-5 HCAPLUS

CN Acetic acid, [(hydroxydibutylstannyl)thio]-, 2-ethylhexyl ester, acetate

(8CI) (CA INDEX NAME)



L55 ANSWER 36 OF 38 HCAPLUS COPYRIGHT 2002 ACS

AN 1970:456807 HCAPLUS

DN 73:56807

TI Organotin compounds as stabilizers for polymers

IN Sassa, Atsuo; Sukutomi, Masuo; Shinkawa, Hirotoshi; Moriya, Tsuneo; Homma, Keisuke

PA Kyodo Chemical Co., Ltd.

SO Ger. Offen., 40 pp.

CODEN: GWXXBX

DT Patent

LA German

IC C07F; C08F

CC 36 (Plastics Manufacture and Processing)

FAN.CNT 2

|      | PATENT NO.    | KIND | DATE     | APPLICATION NO. | DATE         |
|------|---------------|------|----------|-----------------|--------------|
| PI   | DE 1959909    | A    | 19700611 | DE 1969-1959909 | 19691128     |
|      | JP 48024018   | B4   | 19730718 | JP 1968-87295   | 19681130     |
|      | US 3697566    | A    | 19721010 | US 1969-879592  | 19691124 <-- |
|      | FR 2024633    | A5   | 19700827 | FR 1969-41097   | 19691128     |
|      | GB 1302870    | A    | 19730110 | GB 1969-58418   | 19691128     |
|      | CA 964666     | A1   | 19750318 | CA 1969-68616   | 19691128     |
| PRAI | JP 1968-87293 |      | 19681130 |                 |              |
|      | JP 1968-87294 |      | 19681130 |                 |              |
|      | JP 1968-87295 |      | 19681130 |                 |              |

AB Organotin compounds useful for improving the thermal stability of poly(vinyl chloride) are prepd. by the reactions of [BuSn(S)]<sub>2</sub>S with 2-ethylhexyl thioglycolate, diethylene glycol bis(thioglycolate), or pentaerythritol tetrakis(thioglycolate), i.e., to prep. BuSn(S)SCH<sub>2</sub>CO<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>EtBu, [BuSn(S)SCH<sub>2</sub>CO<sub>2</sub>(CH<sub>2</sub>)<sub>2</sub>]<sub>2</sub>O, and [BuSn(S)SCH<sub>2</sub>CO<sub>2</sub>CH<sub>2</sub>]<sub>4</sub>C, resp. Other higher mol. wt. organotin stabilizers are prepd. similarly. These stabilizers are more effective than some known com. stabilizers.

ST organotin stabilizers PVC; stabilizers organotin PVC; PVC organotin stabilizers

IT Acetic acid, mercapto-

RL: USES (Uses)

(reaction products with thioxostannanes, stabilizers for vinyl chloride polymers)

IT Tin

RL: USES (Uses)

(stabilizers, for vinyl chloride polymers)

IT 15666-29-2

RL: USES (Uses)

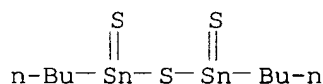
(reaction products with alkyl mercaptoacetates and alkylhydroxyoxostannanes, stabilizers for vinyl chloride polymers)

IT 2273-43-0

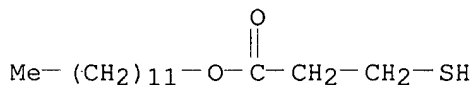
RL: USES (Uses)

- (reaction products with alkyl mercaptoacetates, stabilizers for vinyl chloride polymers)
- IT 6380-71-8  
RL: USES (Uses)  
(reaction products with benzyl mercaptoacetate and butylhydroxyoxostannane, stabilizers for vinyl chloride polymers)
- IT 29431-14-9  
RL: USES (Uses)  
(reaction products with benzylhydroxyoxostannane and ethylhexyl mercaptoacetate, stabilizers for vinyl chloride polymers)
- IT 112-55-0  
RL: USES (Uses)  
(reaction products with butylhydroxyoxostannane and cyclohexyl mercaptoacetate, stabilizers for vinyl chloride polymers)
- IT 1074-36-8  
RL: USES (Uses)  
(reaction products with butylmercaptodithioxostannane polymers and ethylene mercaptoacetate, stabilizers for vinyl chloride polymers)
- IT 123-81-9  
RL: USES (Uses)  
(reaction products with butylmercaptodithioxostannane polymers and mercaptobenzoic acid, stabilizers for vinyl chloride polymers)
- IT 1313-82-2  
RL: USES (Uses)  
(reaction products with butyltrichlorostannane and ethylhexyl mercaptoacetate, stabilizers for vinyl chloride polymers)
- IT 29134-68-7  
RL: USES (Uses)  
(reaction products with diallyldithiodistanthiane and ethylhexyl mercaptoacetate, stabilizers for vinyl chloride polymers)
- IT 29134-69-8  
RL: USES (Uses)  
(reaction products with dibutyldithiodistanthiane and neopentetetrayl mercaptoacetate, stabilizers for vinyl chloride polymers)
- IT 13356-20-2  
RL: USES (Uses)  
(reaction products with dibutyldithiodistanthiane, stabilizers for vinyl chloride polymers)
- IT 16849-98-2  
RL: USES (Uses)  
(reaction products with dodecanethiol and oxostannanes, stabilizers for vinyl chloride polymers)
- IT 7383-63-3  
RL: USES (Uses)  
(reaction products with dodecyl mercaptopropionate and oxostannanes, stabilizers for vinyl chloride polymers)
- IT 10193-99-4  
RL: USES (Uses)  
(reaction products with dodecylhydroxyoxostannane and dibutyldithiodistanthiane, stabilizers for vinyl chloride polymers)
- IT 1118-46-3  
RL: USES (Uses)  
(reaction products with ethylhexyl mercaptoacetate and sodium sulfide, stabilizers for vinyl chloride polymers)
- IT 29534-22-3

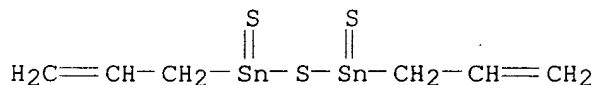
- RL: USES (Uses)  
(reaction products with mercaptocarboxylic acids, stabilizers for vinyl chloride polymers)
- IT 7659-86-1 14974-52-8  
RL: USES (Uses)  
(reaction products with oxostannanes, stabilizers for vinyl chloride polymers)
- IT 9002-86-2, uses and miscellaneous  
RL: USES (Uses)  
(stabilizers for, organotin compds. as)
- IT 26821-65-8 26821-66-9 26872-61-7  
29134-64-3  
RL: USES (Uses)  
(stabilizers, for vinyl chloride polymers)
- IT 15666-29-2  
RL: USES (Uses)  
(reaction products with alkyl mercaptoacetates and alkylhydroxyoxostannanes, stabilizers for vinyl chloride polymers)
- RN 15666-29-2 HCAPLUS  
CN Distannathiane, dibutyldithio- (9CI) (CA INDEX NAME)



- IT 6380-71-8  
RL: USES (Uses)  
(reaction products with benzyl mercaptoacetate and butylhydroxyoxostannane, stabilizers for vinyl chloride polymers)
- RN 6380-71-8 HCAPLUS  
CN Propanoic acid, 3-mercapto-, dodecyl ester (9CI) (CA INDEX NAME)



- IT 29431-14-9  
RL: USES (Uses)  
(reaction products with benzylhydroxyoxostannane and ethylhexyl mercaptoacetate, stabilizers for vinyl chloride polymers)
- RN 29431-14-9 HCAPLUS  
CN Distannthiane, 1,3-diallyl-1,3-dithio- (8CI) (CA INDEX NAME)



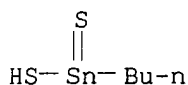
- IT 29534-22-3  
RL: USES (Uses)  
(reaction products with mercaptocarboxylic acids, stabilizers for vinyl chloride polymers)
- RN 29534-22-3 HCAPLUS

CN Stannane, butylmercaptothio-, polymers (8CI) (CA INDEX NAME)

CM 1

CRN 17189-27-4

CMF C4 H10 S2 Sn



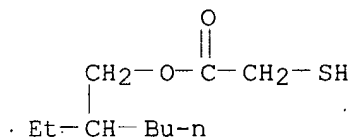
IT 7659-86-1

RL: USES (Uses)

(reaction products with oxostannanes, stabilizers for vinyl chloride polymers)

RN 7659-86-1 HCAPLUS

CN Acetic acid, mercapto-, 2-ethylhexyl ester (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



IT 26821-65-8 26821-66-9 26872-61-7

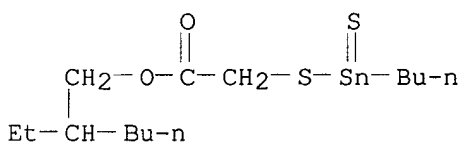
29134-64-3

RL: USES (Uses)

(stabilizers, for vinyl chloride polymers)

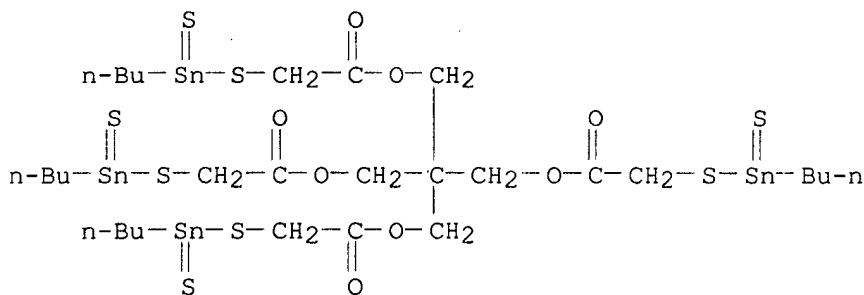
RN 26821-65-8 HCAPLUS

CN Acetic acid, [(butylthioxostannyl)thio]-, 2-ethylhexyl ester (8CI, 9CI) (CA INDEX NAME)

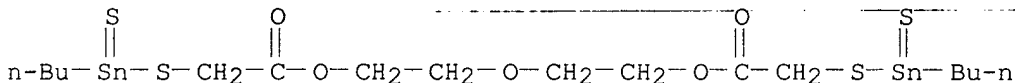


RN 26821-66-9 HCAPLUS

CN Acetic acid, [(butylthioxostannyl)thio]-, neopentanetetrayl ester (8CI) (CA INDEX NAME)

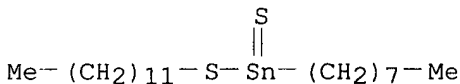


RN 26872-61-7 HCAPLUS

CN Acetic acid, [(butylthioxostannyl)thio]-, oxydi-2,1-ethanediyl ester (9CI)  
(CA INDEX NAME)

RN 29134-64-3 HCAPLUS

CN Stannane, (dodecylthio)octylthio- (8CI) (CA INDEX NAME)



L55 ANSWER 37 OF 38 HCAPLUS COPYRIGHT 2002 ACS

AN 1969:439847 HCAPLUS

DN 71:39847

TI Organotin-stabilized poly(vinyl chloride)

IN Kawakami, Yohei; Seki, Toshio; Uenaka, Shigeyoshi

PA Nitton Kasei Co., Ltd.

SO U.S., 3 pp.

CODEN: USXXAM

DT Patent

LA English

IC C08F

NCL 260045750

CC 36 (Plastics Manufacture and Processing)

FAN.CNT 1

|    | PATENT NO. | KIND | DATE     | APPLICATION NO. | DATE         |
|----|------------|------|----------|-----------------|--------------|
| PI | US 3450668 | A    | 19690617 | US 1965-451677  | 19650414 <-- |

AB Vinyl chloride polymers or copolymers were stabilized by addn. of a B complex, prepd. by reacting equimolar quantities of a lower alkyl mercapto acid, a salt of a lower-alkyl mercapto acid and H<sub>3</sub>BO<sub>3</sub>, and an organotin stabilizer. Thus, 100 parts emulsion type poly(vinyl chloride) resin (I) was compounded with 0.2 part dibutyltin maleate (II) and 0.8 part of the B complex consisting of equimolar amts. of thioglycolic acid (III), Na thioglycolate, and H<sub>3</sub>BO<sub>3</sub>. The mixt. was milled 5 min. at 160.degree. and specimens 1 mm. thick and 1 cm. sq. were prepd. When the sample (IV) was heated at 170.degree. it did not change

*Not release*



color until after 40 min. exposure compared with 25 min. for a sample (V) contg. 100 parts I and 1 part II. On exposure to uv light, IV and V changed color after 23 and 15 hrs., resp. In volatility tests, IV and V lost 0.3 and 1.8% resp., of their original wt. Other Sn compds. used were dibutyltin bis(benzyl maleate), dibutyltin bis(Et maleate), dibutyltin bis(isopropyl maleate), dimethyltin maleate, and dibutyltin dilaurate. Other B complexes used consisted of equimolar amts. of 2-mercaptopropionic acid, Li thioglycolate, and H<sub>3</sub>BO<sub>3</sub>; III, Ba thioglycolate, and H<sub>3</sub>BO<sub>3</sub>; III, Na 2-mercaptopropionate, and H<sub>3</sub>BO<sub>3</sub>; III, K 2-mercaptopropionate, and H<sub>3</sub>BO<sub>3</sub>; and III, dibutyltin lauroxide thioglycolate, and H<sub>3</sub>BO<sub>3</sub>. Other polymers stabilized were a vinyl acetate-vinyl chloride copolymer, a mixt. of I and chlorinated polyethylene, and a mixt. of I and an acrylonitrile-butadiene-styrene copolymer.

ST PVC organotin stabilized; organotin stabilized PVC

IT Acetic acid, mercapto-

RL: USES (Uses)

(reaction products with boric acid, stabilizers from organotin compds. and, for vinyl chloride polymers)

IT Boric acid (H<sub>3</sub>BO<sub>3</sub>)

RL: USES (Uses)

(reaction products with mercapto acid derivs., stabilizers from organotin compds. and, for vinyl chloride polymers)

IT 1,3,2-Dioxastannepin-4,7-dione, 2,2-dimethyl-

Maleic acid, cyclic dimethyltin deriv.

Maleic acid, ethyl ester, dibutylstannylene deriv.

Maleic acid, isopropyl ester, dibutylstannylene deriv.

Stannane, dibutylbis[(3-carboxyacryloyl)oxy]-, diethyl ester

Stannane, dibutylbis[(3-carboxyacryloyl)oxy]-, diisopropyl ester

RL: USES (Uses)

(stabilizers from boric acid complexes and, for vinyl chloride polymers)

IT 9002-88-4, uses and miscellaneous

RL: USES (Uses)

(chlorinated, stabilizers for, boric acid complexes-organotin compds. as)

IT 79-42-5 367-51-1 7664-80-4 22535-44-0 22535-45-1

22535-46-2 22535-47-3

RL: USES (Uses)

(reaction products with boric acid, stabilizers from organotin compds. and, for vinyl chloride polymers)

IT 9002-86-2, uses and miscellaneous 9003-22-9, uses and miscellaneous

9003-56-9, uses and miscellaneous

RL: USES (Uses)

(stabilizers for, boric acid complexes-organotin compds. as)

IT 77-58-7 78-04-6 7324-74-5 22535-48-4

RL: USES (Uses)

(stabilizers from boric acid complexes and, for vinyl chloride polymers)

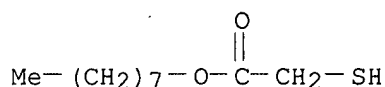
IT 7664-80-4

RL: USES (Uses)

(reaction products with boric acid, stabilizers from organotin compds. and, for vinyl chloride polymers)

RN 7664-80-4 HCAPLUS

CN Acetic acid, mercapto-, octyl ester (6CI, 8CI, 9CI) (CA INDEX NAME)



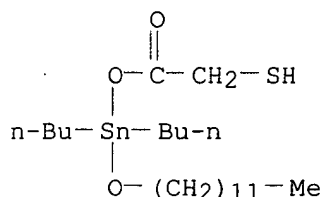
IT 22535-48-4

RL: USES (Uses)

(stabilizers from boric acid complexes and, for vinyl chloride polymers)

RN 22535-48-4 HCAPLUS

CN Stannane, dibutyl(dodecyloxy)(mercaptoacetoxy)- (8CI) (CA INDEX NAME)



L55 ANSWER 38 OF 38 HCAPLUS COPYRIGHT 2002 ACS

AN 1967:46885 HCAPLUS

DN 66:46885

TI The effectiveness of organolead compounds as heat stabilizers for poly(vinyl chloride)

AU Braun, Dietrich; Chang, Sung Bong; Thallmaier, Manfred

CS Deut. Kunststoff-Inst., Darmstadt, Ger.

SO Gummi, Asbest, Kunstst. (1966), 19(11), 1353-6

CODEN: GAKSA2

DT Journal

LA German

CC 36 (Plastics Manufacture and Processing)

AB Vestolit S55 poly(vinyl chloride) powder was mixed with 1% stabilizer and heated 2.5 hrs. at 170.degree. and the HCl given off was measured. The stabilization time during which very little HCl was given off was also measured. The following results were obtained (stabilizer, stabilization time (hrs.), % HCl in 1,2, and 2.5 hrs., time for complete degradation, % conversion, and color of end product given): -, -, 0.141, 0.359, 0.463, 2.7, 0.542, light reddish brown; Bu2Pb dilaurate, 0.20, 0.151, 0.337, 0.415, 2.9, 0.505, light ochre; Bu3PbOAc (I), -, 0.195, 0.399, 0.505, 3.1, 0.633, ochre; Bu3Pb 2-ethylhexanoate (II), -, 0.207, 0.437, 0.531, 2.4, 0.555, yellow; Bu3Pb undecenoate, 0.45, 0.151, 0.400, 0.496, 2.4, 0.505, light ochre; tributylplumbylimidazole, 0.55, 0.203, 0.755, -, 2.1, 0.835, reddish brown; Bu3PbSPh, 0.75, 0.098, 0.605, 0.860, 2.7, 0.992, light reddish brown; Bu4Pb, -, 0.142, 0.313, 0.383, 2.4, 0.420, ochre; PhPb(OAc)3, -, 0.136, 0.215, 0.278, 2.5, 0.295, light ochre; PhPb(OR)3 (R = 1:1 mixt. of 2-hexanoyl and 3,5,5-trimethylhexanoyl), 1.03, 0.082, 0.242, 0.310, 3.1, 0.436, light ochre; (PhPbO)2O, 1.3, 0.020, 0.12, 0.190, 2.3, 0.202, ochre; Ph2Pb(OAc)2, -, 0.240, 0.611, -, 2.0, 0.658, yellow; Ph2Pb dimaleate, -, 0.112, 0.377, 0.505, 2.5, 0.505, yellow; Ph2Pb diethylmaleate, -, 0.252, 0.363, 0.436, 2.5, 0.442, pale yellow; Ph2PbCl2, -, 0.281, 0.564, -, 2.2, 0.646, yellow; Ph2PbO, 0.60, 0.109, 0.370, 0.482, 2.9, 0.600, ochre; Ph2PbS, 0.60, 0.307, 1.773, -, 2.0, 1.770, brown; Ph3PbCl, 0.30, 0.248, 0.745, 1.040, 2.5, 1.094, ochre; Ph3PbOPh, 0.30, 0.124, 0.313, 0.390, 2.4, 0.414, light ochre; (Ph3Pb)2S, 0.93, 0.025, 0.281, -, 2.0, 0.301, ochre; Ph3PbSMe, 0.67, 0.071, 0.482, 0.617, 2.4,

0.631, ochre; Ph<sub>3</sub>PbSCH<sub>2</sub>CO<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>CHMeCH<sub>2</sub>CMe<sub>3</sub> (III), >2.4, 0.014, 0.019, 0.021, 2.4, 0.023, yellowish; HSCH<sub>2</sub>CO<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>CHMeCH<sub>2</sub>CMe<sub>3</sub>, -, 0.153, 0.324, -, 2.0, 0.342, ochre; Ph<sub>4</sub>Pb (IV), 1.26, 0.031, 0.181, -, 2.3, 0.190, yellow; p-(triphenylplumbyl)styrene (IV), 1.05, 0.003, 0.324, 0.491, 2.7, 0.580, yellow; Ph<sub>6</sub>Pb<sub>2</sub> (VI), 1.50, 0.019, 0.120, 0.276, 2.4, 0.280, yellow; Ph<sub>6</sub>Sn<sub>2</sub>, -, 0.236, -, -, 1.6, 0.280, olive green; (Ph<sub>3</sub>Pb)<sub>4</sub>Sn, 1.35, 0.025, 0.141, 0.177, 2.3, 0.211, yellow; Advastab 17M (contg. S and Sn), -, 0.046, 0.123, 0.214, 3.0, 0.330, ochre; Advastab DBTM (Bu<sub>2</sub>Sn maleate), 2.00, 0.126, 0.194, 0.255, 2.3, 0.271, ochre; Advastab BC 26 (contg. Ba and Cd) (VII), 0.75, 0.066, 0.360, -, 2.0, 0.371, light ochre; Zn stearate, 0.40, 0.242, -, -, 1.0, 2.42, blackish brown; Pb stearate, 1.95, 0.062, 0.098, -, 2.2, 0.207, ochre. Similarly, Vestolit S55 was mixed with 1% of compds. I-VII, 1 g. Hoechst Wax E, and 0-50 g. dioctyl phthalate, and heated at 180.degree.. Samples were removed every 15 min. and examd. for color and showed that degradation begins suddenly with a big color change.

ST ORGANOLEAD HEAT STABILIZERS **PVC**; HEAT STABILIZERS **PVC**  
ORGANOLEAD; LEAD HEAT STABILIZERS **PVC**; **PVC** ORGANOLEAD  
HEAT STABILIZERS; STABILIZERS HEAT ORGANOLEAD **PVC**

IT Advastab BC 26

RL: USES (Uses)

(chloroethylene polymer heat stabilized by)

IT 1920-90-7 3076-54-8 10366-23-1 **10527-49-8** 15798-51-3  
15798-53-5 15873-20-8 16128-42-0

RL: USES (Uses)

(as chloroethylene polymer heat stabilizer)

IT 78-04-6 595-89-1 1064-10-4 1153-06-6 1802-88-6 2117-69-3  
3124-01-4 3600-12-2 **4253-22-9** 6928-68-3 13689-33-3  
14127-49-2 15734-55-1 15734-73-3 15798-59-1 15873-22-0  
16128-20-4

RL: USES (Uses)

(chloroethylene polymer heat stabilized by)

IT 2587-82-8 15873-19-5

RL: USES (Uses)

(chloroethylene polymer stabilized by)

IT 9002-86-2, uses and miscellaneous

RL: USES (Uses)

(heat stabilizers for, plumbanes or stannanes as)

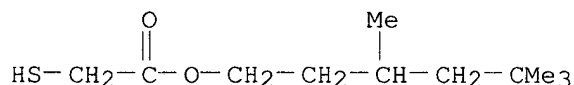
IT **10527-49-8**

RL: USES (Uses)

(as chloroethylene polymer heat stabilizer)

RN 10527-49-8 HCAPLUS

CN Acetic acid, mercapto-, 3,5,5-trimethylhexyl ester (6CI, 7CI, 8CI) (CA INDEX NAME)



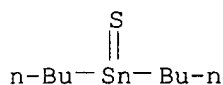
IT **4253-22-9**

RL: USES (Uses)

(chloroethylene polymer heat stabilized by)

RN 4253-22-9 HCAPLUS

CN Stannane, dibutylthioxo- (8CI, 9CI) (CA INDEX NAME)

296

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L2 ( 353067) SEA FILE=REGISTRY ABB=ON (S(L)C(L)H(L)O)/ELS(L)4/ELC.SUB  
L3 38364 SEA FILE=REGISTRY ABB=ON L2 NOT 1-40/NR  
L4 16503 SEA FILE=REGISTRY ABB=ON L3 AND ESTER  
L5 4006 SEA FILE=REGISTRY ABB=ON L4 AND 2/O AND 1/S  
L6 2424 SEA FILE=REGISTRY ABB=ON L5 AND 1/NC  
L8 492 SEA FILE=REGISTRY ABB=ON L6 AND (MERCAPT? OR THIOL)  
L10 36163 SEA FILE=REGISTRY ABB=ON ((CL OR I OR BR OR F) (L) SN(L)C(L)H)/E  
LS  
L12 3157 SEA FILE=HCAPLUS ABB=ON L8  
L35 18340 SEA FILE=HCAPLUS ABB=ON L10  
L36 118 SEA FILE=HCAPLUS ABB=ON L12 AND L35  
L37 86 SEA FILE=HCAPLUS ABB=ON L36 AND P/DT  
L39 32 SEA FILE=HCAPLUS ABB=ON L36 NOT L37  
L40 44 SEA FILE=HCAPLUS ABB=ON L37 AND US/PC  
L41 19 SEA FILE=HCAPLUS ABB=ON L40 NOT ((1981-2002)/AY OR (1981-2002)  
/PRY)  
L43 42 SEA FILE=HCAPLUS ABB=ON L37 NOT US/PC  
L44 20 SEA FILE=HCAPLUS ABB=ON L43 AND PD.B<19801212  
L46 4 SEA FILE=HCAPLUS ABB=ON L39 NOT (1981-2002)/PY  
L47 43 SEA FILE=HCAPLUS ABB=ON L41 OR L46 OR L44  
L48 36 SEA FILE=HCAPLUS ABB=ON L47 AND (PVC OR ?VINYL?)  
L56 8 SEA FILE=HCAPLUS ABB=ON L48 AND (COMPOSITION? OR COMPNS)  
L58 9 SEA FILE=HCAPLUS ABB=ON L47 AND (COMPOSITION? OR COMPNS)  
L59 9 SEA FILE=HCAPLUS ABB=ON L56 OR L58

=&gt; d 159 all 1-9 hitstr

L59 ANSWER 1 OF 9 HCAPLUS COPYRIGHT 2002 ACS  
AN 1979:421784 HCAPLUS  
DN 91:21784  
TI Heat-resistant PVC compositions  
IN Kitano, Yoshikazu  
PA Nitto Kasei Co., Ltd., Japan  
SO Jpn. Kokai Tokkyo Koho, 5 pp.  
CODEN: JKXXAF  
DT Patent  
LA Japanese  
IC C08L027-02; C08K005-57  
CC 36-6 (Plastics Manufacture and Processing)  
Section cross-reference(s): 29

FAN.CNT 1

|    | PATENT NO.                                                                                                                                                                                                                                                                                                                         | KIND | DATE     | APPLICATION NO. | DATE     |
|----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|----------|-----------------|----------|
| PI | JP 53034846                                                                                                                                                                                                                                                                                                                        | A2   | 19780331 | JP 1976-110629  | 19760913 |
|    | JP 54037975                                                                                                                                                                                                                                                                                                                        | B4   | 19791117 |                 |          |
| AB | Heat-resistant PVC [9002-86-2] compns. contain organotin compds. (RO2CCH2CH2)2SnR1R2, (RO2CCH2CH2)2SnY, and(or) (RO2CCH2CH2)2SnR1ZSnR2(CH2CH2CO2R)2 [R = C1-18 alkyl; R1 = S(CH2)nCO2R3, SR3, O2CR3, O2CCH:CHCO2R3, OR3; R2 = R1, Cl; R3 = C1-18 alkyl, alkenyl, cycloalkyl, benzyl, alkoxyalkyl; Y = Sm, S(CH2)nCO2, O2CCH:CHCO2, |      |          |                 |          |

$S(CH_2)nCO_2(CH_2)pO_2C(CH_2)nS$ ;  $Z = Sm, O$ ;  $m = 1-3$ ;  $n = 1-4$ ;  $p = 2-12$ ]. Thus, a mixt. of 59.4 g Sn foil, 86.1 g Me acrylate [96-33-3], and 200 mL  $C_6H_6$  was heated to 60-70.degree. to give 154.6 g bis(carbomethoxyethyl)tin dichloride [10175-01-6], which (36.4 g) was mixed with 40.8 g isooctyl thioglycolate [25103-09-7], 100 mL  $C_6H_6$ , 12.2 g  $NH_4OH$ , and 50 mL  $H_2O$ , and dispersed. The org. layer was washed with  $H_2O$  and concd. to give 65.5 g bis(carbomethoxyethyl)tin bis(isooctyl mercaptoacetate) (I) [61460-21-7]. A mixt. of 100 parts PVC and 2 parts I was kneaded 3 min at 170.degree. to give a 0.5-mm sheet with better heat resistance at 190.degree. than a control contg. dioctyltin bis(isooctyl mercaptoacetate) instead of I.

ST heat resistant PVC compn; tin deriv heat stabilizer;  
carboxyethyltin deriv heat stabilizer

IT Heat stabilizers

(bis(carbalkoxyethyl)tin compds., for PVC)

IT 9002-86-2

RL: USES (Uses)

(heat stabilizers for, bis(carbalkoxyethyl)tin compds. as)

IT 67651-32-5

RL: MOA (Modifier or additive use); USES (Uses)

(heat stabilizers, for PVC)

IT 67649-64-3

RL: MOA (Modifier or additive use); USES (Uses)

(heat stabilizers, for PVC, prepn. and reactions of)

IT 61460-21-7 61470-35-7 61470-36-8 61470-37-9 67649-62-1

67649-63-2 67651-30-3 67651-31-4

RL: MOA (Modifier or additive use); USES (Uses)

(heat stabilizers, for PVC, prepn. of)

IT 10175-02-7P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)

(prepn. and reaction with isooctyl mercaptopropionate)

IT 10175-01-6P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)

(prepn. and reactions of)

IT 10175-03-8P 67651-33-6P

RL: PREP (Preparation)

(prepn. of)

IT 7440-31-5, reactions

RL: RCT (Reactant)

(reaction of, with Me acrylate)

IT 30374-01-7

RL: RCT (Reactant)

(reaction of, with bis(carbomethoxyethyl)tin dichloride)

IT 112-55-0 143-07-7, reactions 13040-20-5 22504-50-3

25103-09-7 27431-40-9

RL: RCT (Reactant)

(reaction of, with bis(carbomethoxyethyl)tin dichloride)

IT 96-33-3

RL: RCT (Reactant)

(reaction of, with tin)

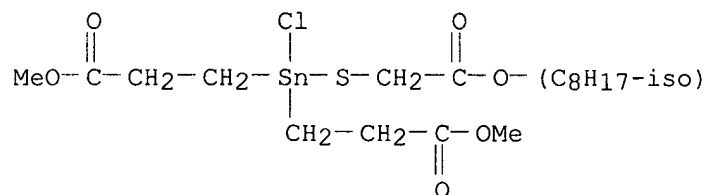
IT 67649-64-3

RL: MOA (Modifier or additive use); USES (Uses)

(heat stabilizers, for PVC, prepn. and reactions of)

RN 67649-64-3 HCAPLUS

CN Propanoic acid, 3,3'-[chloro[[2-(isooctyloxy)-2-oxoethyl]thio]stannylene]bis-, dimethyl ester (9CI) (CA INDEX NAME)

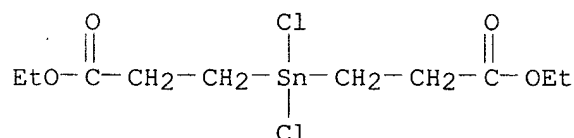


IT 10175-02-7P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)  
(prepn. and reaction with isooctyl mercaptopropionate)

RN 10175-02-7 HCAPLUS

CN Propanoic acid, 3,3'-(dichlorostannylene)bis-, diethyl ester (9CI) (CA INDEX NAME)

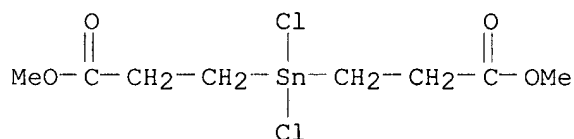


IT 10175-01-6P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)  
(prepn. and reactions of)

RN 10175-01-6 HCAPLUS

CN Propanoic acid, 3,3'-(dichlorostannylene)bis-, dimethyl ester (9CI) (CA INDEX NAME)

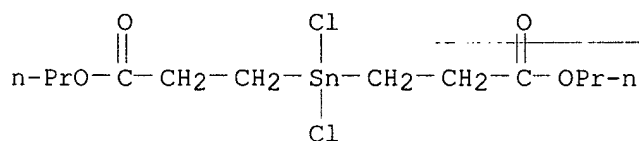


IT 10175-03-8P

RL: PREP (Preparation)  
(prepn. of)

RN 10175-03-8 HCAPLUS

CN Propanoic acid, 3,3'-(dichlorostannylene)bis-, dipropyl ester (9CI) (CA INDEX NAME)

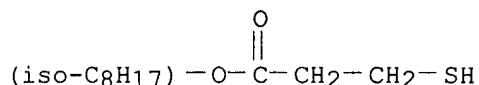


IT 30374-01-7

RL: RCT (Reactant)  
(reaction of, with bis(carbethoxyethyl)tin dichloride)

RN 30374-01-7 HCAPLUS

CN Propanoic acid, 3-mercapto-, isooctyl ester (9CI) (CA INDEX NAME)



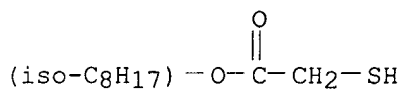
IT 25103-09-7

RL: RCT (Reactant)

(reaction of, with bis(carbomethoxyethyl)tin dichloride)

RN 25103-09-7 HCAPLUS

CN Acetic acid, mercapto-, isooctyl ester (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



L59 ANSWER 2 OF 9 HCAPLUS COPYRIGHT 2002 ACS

AN 1978:490663 HCAPLUS

DN 89:90663

TI Liquid stabilizer systems and vinyl halide resin compositions containing them

IN Hoch, Samuel; Ceprini, Mario Q.; Szabo, Emery

PA Tenneco Chemicals, Inc., USA

SO U.S., 7 pp.

CODEN: USXXAM

DT Patent

LA English

IC C08K005-58

NCL 260045750S

CC 36-6 (Plastics Manufacture and Processing)

FAN.CNT 1

|      | PATENT NO.     | KIND | DATE     | APPLICATION NO. | DATE         |
|------|----------------|------|----------|-----------------|--------------|
| PI   | US 4059562     | A    | 19771122 | US 1977-779650  | 19770321 <-- |
|      | JP 54143455    | A2   | 19791108 | JP 1978-50263   | 19780428     |
| PRAI | US 1977-779650 |      | 19771122 |                 |              |

AB Organotin ethanolmercaptides contg. a higher alc. component and an alkyl acid phosphate are good heat stabilizers for PVC [9002-86-2]. Thus, laurylmercaptan [112-55-0] 130.6, 2-mercaptoethanol [60-24-2] 98.7, butylstannic acid 131.8, and 2-methyl-2,4-pentanediol [107-41-5] 159.1 g were heated at 90-5.degree. at 110-20 mm until 22.7 g water was collected. A 4-methyl-2-pentanol [108-11-2]-P205 mixt. (2.5 g) was added to give a soln. of monobutyltin mono(dodecylmercaptide) di(ethanolmercaptide) (I) [65411-05-4]. A PVC formulation contg. 0.40 part I/100 parts resin developed a color (off-white) after 8 min at 178.degree., compared with 6 and 8 (slightly yellow to yellow) for formulations contg. com. stabilizers.

ST organotin ethanolmercaptide stabilizer PVC; heat stabilizer PVC

IT Heat stabilizers

(organotin ethanolmercaptides, for PVC)

IT Alcohols, uses and miscellaneous

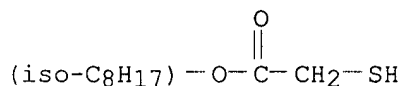
(C12-15-alkyl, organotin ethanolmercaptide heat stabilizers contg.)

IT 9002-86-2

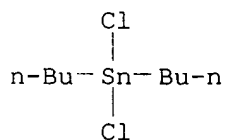
RL: USES (Uses)

*Not  
reverse*

(heat stabilizers for, organotin ethanolmercaptides as)  
IT 65411-04-3 65411-05-4 65411-06-5 65411-07-6 65436-57-9  
65436-58-0 65459-04-3  
RL: MOA (Modifier or additive use); USES (Uses)  
(heat stabilizers, for PVC)  
IT 104-76-7 107-41-5 108-11-2D, mixed esters with phosphorus pentoxide  
1314-56-3D, reaction products with methylpentanol  
RL: USES (Uses)  
(organotin ethanolmercaptide heat stabilizers contg.)  
IT 25103-09-7  
RL: RCT (Reactant)  
(reaction of, with butylstannoic acid and mercaptoethanol)  
IT 1313-82-2, reactions  
RL: RCT (Reactant)  
(reaction of, with butyltin trichloride and mercaptoethanol)  
IT 60-24-2  
RL: RCT (Reactant)  
(reaction of, with butyltin trichloride and sodium sulfide)  
IT 112-55-0  
RL: RCT (Reactant)  
(reaction of, with dibutyltin dichloride and mercaptoethanol)  
IT 818-08-6  
RL: RCT (Reactant)  
(reaction of, with isooctyl thioglycolate and mercaptoethanol)  
IT 2273-43-0  
RL: RCT (Reactant)  
(reaction of, with isooctylthioglycolate and mercaptoethanol)  
IT 683-18-1  
RL: RCT (Reactant)  
(reaction of, with laurylmercaptan and mercaptoethanol)  
IT 1118-46-3  
RL: RCT (Reactant)  
(reaction of, with mercaptoethanol and sodium sulfide)  
IT 25103-09-7  
RL: RCT (Reactant)  
(reaction of, with butylstannoic acid and mercaptoethanol)  
RN 25103-09-7 HCAPLUS  
CN Acetic acid, mercapto-, isooctyl ester (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



IT 683-18-1  
RL: RCT (Reactant)  
(reaction of, with laurylmercaptan and mercaptoethanol)  
RN 683-18-1 HCAPLUS  
CN Stannane, dibutyldichloro- (8CI, 9CI) (CA INDEX NAME)





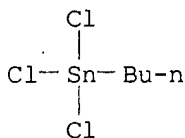
IT 1118-46-3

RL: RCT (Reactant)

(reaction of, with mercaptoethanol and sodium sulfide)

RN 1118-46-3 HCAPLUS

CN Stannane, butyltrichloro- (8CI, 9CI) (CA INDEX NAME)



L59 ANSWER 3 OF 9 HCAPLUS COPYRIGHT 2002 ACS

AN 1978:444633 HCAPLUS

DN 89:44633

TI Stabilizer **composition** for plastics

IN Gough, Robert George; Buescher, Francis Joseph

PA Cincinnati Milacron, Inc., USA

SO Ger. Offen., 31 pp.

CODEN: GWXXBX

DT **Patent**

LA German

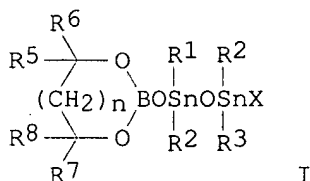
IC C08L027-00

CC 36-6 (Plastics Manufacture and Processing)

Section cross-reference(s): 29

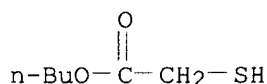
FAN.CNT 2

|      | PATENT NO.     | KIND | DATE     | APPLICATION NO. | DATE         |
|------|----------------|------|----------|-----------------|--------------|
| PI   | DE 2703904     | B2   | 19790301 | DE 1977-2703904 | 19770131     |
|      | DE 2703904     | C3   | 19791025 |                 |              |
|      | US 4021407     | A    | 19770503 | US 1976-700572  | 19760628 <-- |
| PRAI | US 1976-700572 |      | 19760628 |                 |              |
| GI   |                |      |          |                 |              |

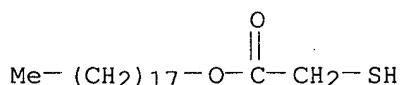
*Not reverse*

AB The borates I (R1,R2,R3,R4 = hydrocarbyl; R5,R7 = H, C1-4 alkyl; R6,R8 = C1-4 alkyl; X = Cl,Br; n = 0-2) and thiols (SH equiv. 40-400, b. >180.degree.) are synergistic heat stabilizers for vinyl halide polymers. Thus, refluxing 10.0 g 1-chloro-3-hydroxy-1,1,3,3-tetramethyldistannoxane [1724-79-4], 3.93 g 4,4,6-trimethyl-1,3,2-dioxaborinan-2-ol [78-60-4], and C6H6 1.5 h with H2O distn. gives 100% crude 2-[(3-chloro-1,1,3,3-tetramethyldistannoxanyl)oxy]-4,4,6-trimethyl-1,3,2-dioxaborinane (I, R1-R6 = R8 = Me; R7 = H, X = Cl, n = 1) (II) [63245-40-9]. Calendering PVC [9002-86-2] contg. 0.5 phr II and 0.33 phr isooctyl mercaptoacetate (III) [25103-09-7] at 193.degree. requires 8 min for yellowing, compared with 2 in the absence of I or II.

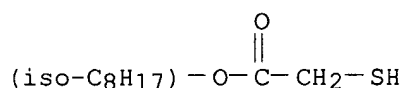
- ST heat stabilizer **PVC**; distannoxanyloxydioxaborinane heat stabilizer; dioxaborinane distannoxanyloxy heat stabilizer; borate cyclic heat stabilizer; tin compd heat stabilizer
- IT Heat stabilizers  
((distannoxanyloxy)dioxaborinanes-thiols, for **PVC**)
- IT Thiols, uses and miscellaneous  
RL: MOA (Modifier or additive use); USES (Uses)  
(heat stabilizers, contg. (distannoxanyloxy)dioxaborinanes, for **PVC**)
- IT 9002-86-2  
RL: USES (Uses)  
(heat stabilizers for, (distannoxanyloxy)dioxaborinanes-thiols as)
- IT 68-11-1, uses and miscellaneous 107-96-0 111-88-6 112-55-0  
814-71-1 7383-63-3 7575-23-7 10047-28-6 10220-46-9  
25103-09-7 30374-01-7  
RL: MOA (Modifier or additive use); USES (Uses)  
(heat stabilizers, contg. (distannoxanyloxy)dioxaborinanes, for **PVC**)
- IT 63245-39-6 63245-40-9 63802-89-1  
RL: MOA (Modifier or additive use); USES (Uses)  
(heat stabilizers, contg. thiols, for **PVC**)
- IT 78-60-4  
RL: RCT (Reactant)  
(reaction of, with hydroxydistannoxanes)
- IT 1724-79-4 10428-21-4 28520-98-1  
RL: RCT (Reactant)  
(reaction of, with trimethyldioxaboranol)
- IT 10047-28-6 10220-46-9 25103-09-7 30374-01-7  
RL: MOA (Modifier or additive use); USES (Uses)  
(heat stabilizers, contg. (distannoxanyloxy)dioxaborinanes, for **PVC**)
- RN 10047-28-6 HCAPLUS
- CN Acetic acid, mercapto-, butyl ester (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



- RN 10220-46-9 HCAPLUS
- CN Acetic acid, mercapto-, octadecyl ester (7CI, 8CI, 9CI) (CA INDEX NAME)

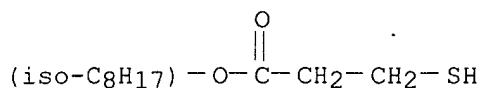


- RN 25103-09-7 HCAPLUS
- CN Acetic acid, mercapto-, isooctyl ester (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



RN 30374-01-7 HCAPLUS

CN Propanoic acid, 3-mercapto-, isooctyl ester (9CI) (CA INDEX NAME)

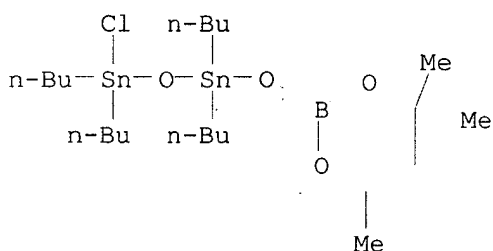


IT 63245-39-6 63245-40-9 63802-89-1

RL: MOA (Modifier or additive use); USES (Uses)  
(heat stabilizers, contg. thiols, for PVC)

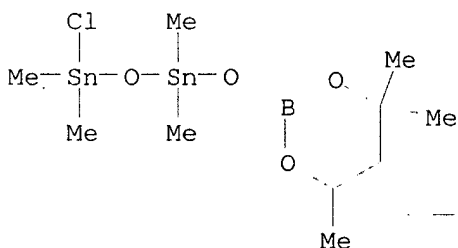
RN 63245-39-6 HCAPLUS

CN 1,3,2-Dioxaborinane, 4,4,6-trimethyl-2-[(1,1,3,3-tetrabutyl-3-chlorodistannoxanyl)oxy]- (9CI) (CA INDEX NAME)



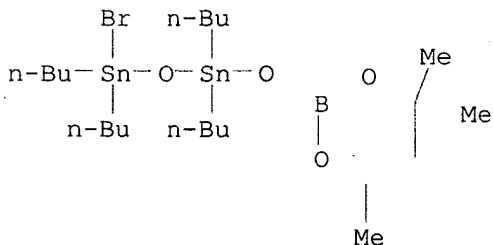
RN 63245-40-9 HCAPLUS

CN 1,3,2-Dioxaborinane, 2-[(3-chloro-1,1,3,3-tetramethyldistannoxanyl)oxy]-4,4,6-trimethyl- (9CI) (CA INDEX NAME)



RN 63802-89-1 HCAPLUS

CN 1,3,2-Dioxaborinane, 2-[(3-bromo-1,1,3,3-tetrabutyl-distannoxanyl)oxy]-4,4,6-trimethyl- (9CI) (CA INDEX NAME)



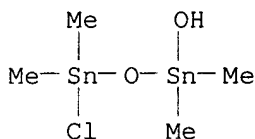
IT 1724-79-4 10428-21-4 28520-98-1

RL: RCT (Reactant)

(reaction of, with trimethyldioxaboranol)

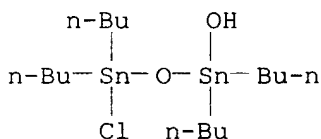
RN 1724-79-4 HCAPLUS

CN Distannoxane, 1-chloro-3-hydroxy-1,1,3,3-tetramethyl- (8CI, 9CI) (CA INDEX NAME)



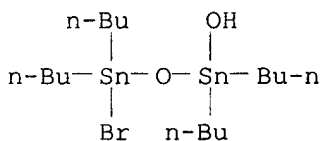
RN 10428-21-4 HCAPLUS

CN Distannoxane, 1,1,3,3-tetrabutyl-1-chloro-3-hydroxy- (8CI, 9CI) (CA INDEX NAME)



RN 28520-98-1 HCAPLUS

CN Distannoxane, 1-bromo-1,1,3,3-tetrabutyl-3-hydroxy- (8CI, 9CI) (CA INDEX NAME)



L59 ANSWER 4 OF 9 HCAPLUS COPYRIGHT 2002 ACS

AN 1977:454075 HCAPLUS

DN 87:54075

TI Synergistic organotin borate stabilizer **compositions** and resins containing same

IN Gough, Robert George; Buescher, Francis Joseph

PA Cincinnati Milacron, Inc., USA

SO U.S., 9 pp.

CODEN: USXXAM

DT **Patent**

LA English

IC C08K005-57

NCL 260045750J

CC 36-6 (Plastics Manufacture and Processing)

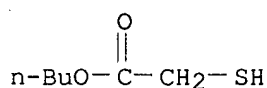
FAN.CNT 2

|    | PATENT NO. | KIND | DATE     | APPLICATION NO. | DATE         |
|----|------------|------|----------|-----------------|--------------|
| PI | US 4021407 | A    | 19770503 | US 1976-700572  | 19760628 <-- |
|    | DE 2703904 | B2   | 19790301 | DE 1977-2703904 | 19770131     |
|    | DE 2703904 | C3   | 19791025 |                 |              |

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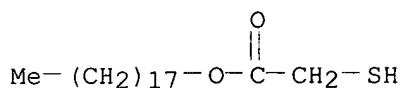
*Not reverse*

AU 7722749      A1    19780907      AU 1977-22749      19770228  
AU 497668      B2    19781221  
JP 53007754      A2    19780124      JP 1977-23716      19770304  
JP 55004334      B4    19800130  
GB 1570812      A    19800709      GB 1977-11193      19770316  
CA 1084691      A1    19800902      CA 1977-274590      19770323  
PRAI US 1976-700572      19760628  
AB A PVC [9002-86-2] resin **compn.** with improved  
discoloration resistance during processing is prepd., contg. a synergistic  
stabilizer comprising and organotin borate and an org. thiol. Thus, a  
mixt. of 1 mol H3BO3, 1 mol 2-methyl-2,4-pentanediol [107-41-5], and 1000  
mL C6H6 was refluxed and dried under reduced pressure to give a white  
solid [78-60-4] (with m.p. 73-5.degree.) which (0.0273 mol) was treated  
with 0.0273 mol 1-hydroxy-3-chloro-1,1,3,3-tetramethyldistannoxane [   
**1724-79-4**] in refluxing C6H6 for 1.5 h. The resulting product was  
dried and crystd. from acetonitrile to give white crystals. (I) [   
**63245-40-9**] with m.p. 252-53.degree.. A mixt. of PVC  
100, TiO2 1.0, Ca stearate 1.0, I 0.5, isooctyl thioglycolate [   
**25103-09-7**] 0.33 part was stirred 5 min and rolled at  
380.degree.F; discoloration occurred in 8 min compared with 2 min for a  
control when I was omitted.  
ST heat stabilizer PVC resin; thiol org heat stabilizer; borate  
organotin heat stabilizer  
IT Heat stabilizers  
    (organotin borate-org. thiol, for PVC)  
IT 9002-86-2  
    RL: USES (Uses)  
        (heat stabilizers for)  
IT 68-11-1, uses and miscellaneous    107-96-0    111-88-6    112-55-0  
    814-71-1    7383-63-3    7575-23-7    10047-28-6    10220-46-9  
    **25103-09-7    30374-01-7    63245-39-6**  
    **63245-40-9**  
    RL: MOA (Modifier or additive use); USES (Uses)  
        (heat stabilizers, for PVC)  
IT 107-41-5  
    RL: RCT (Reactant)  
        (reaction of, with boric acid)  
IT 78-60-4  
    RL: RCT (Reactant)  
        (reaction of, with hydroxychlorotetramethyldistannoxane)  
IT 10043-35-3, reactions  
    RL: RCT (Reactant)  
        (reaction of, with methylpentanediol)  
IT **1724-79-4**  
    RL: RCT (Reactant)  
        (reaction of, with trimethylhydroxydioxaborinane)  
IT **10047-28-6    10220-46-9    25103-09-7**  
    **30374-01-7    63245-39-6    63245-40-9**  
    RL: MOA (Modifier or additive use); USES (Uses)  
        (heat stabilizers, for PVC)  
RN 10047-28-6    HCAPLUS  
CN Acetic acid, mercapto-, butyl ester (6CI, 7CI, 8CI, 9CI)    (CA INDEX NAME)



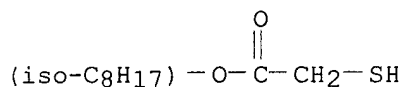
RN 10220-46-9    HCAPLUS

CN Acetic acid, mercapto-, octadecyl ester (7CI, 8CI, 9CI) (CA INDEX NAME)



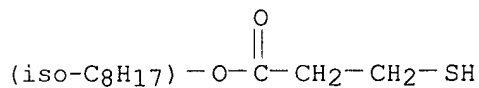
RN 25103-09-7 HCAPLUS

CN Acetic acid, mercapto-, isooctyl ester (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



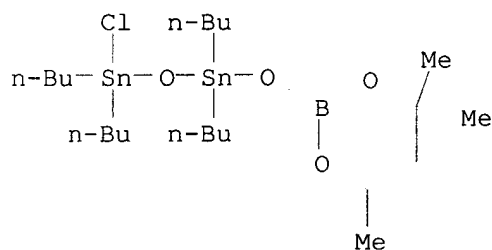
RN 30374-01-7 HCAPLUS

CN Propanoic acid, 3-mercapto-, isooctyl ester (9CI) (CA INDEX NAME)



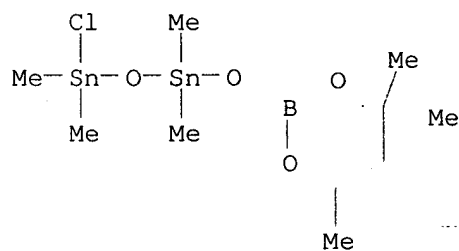
RN 63245-39-6 HCAPLUS

CN 1,3,2-Dioxaborinane, 4,4,6-trimethyl-2-[(1,1,3,3-tetrabutyl-3-chlorodistannoxanyl)oxy]- (9CI) (CA INDEX NAME)



RN 63245-40-9 HCAPLUS

CN 1,3,2-Dioxaborinane, 2-[(3-chloro-1,1,3,3-tetramethyldistannoxanyl)oxy]-4,4,6-trimethyl- (9CI) (CA INDEX NAME)



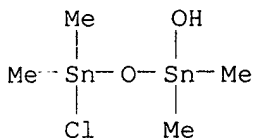
IT 1724-79-4

RL: RCT (Reactant)

(reaction of, with trimethylhydroxydioxaborinane)

RN 1724-79-4 HCAPLUS

CN Distannoxane, 1-chloro-3-hydroxy-1,1,3,3-tetramethyl- (8CI, 9CI) (CA INDEX NAME)



L59 ANSWER 5 OF 9 HCAPLUS COPYRIGHT 2002 ACS

AN 1977:30526 HCAPLUS

DN 86:30526

TI Organotin compounds as nonpoisonous heat stabilizers for poly(vinyl chloride)

IN Ohnishi, Fusamatsu; Motobashi, Akira

PA Sankyo Organic Chemicals Co., Ltd., Japan

SO Japan. Kokai, 5 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC C08L027-06

CC 36-6 (Plastics Manufacture and Processing)

FAN.CNT 1

|    | PATENT NO.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | KIND       | DATE       | APPLICATION NO. | DATE     |
|----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|------------|-----------------|----------|
| PI | JP 51093947                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | A2         | 19760818   | JP 1975-19491   | 19750218 |
| AB | A vinyl chloride resin compn. is prepd., contg. organotin compds. as nonpoisonous stabilizer. Thus, a mixt. of BuSnCl <sub>3</sub> [1118-46-3] 98.85, Bu <sub>2</sub> SuCl <sub>2</sub> [683-18-1] 1.03, and Bu <sub>3</sub> SnCl [1461-22-9] 0.12% was treated with NaOH to give a white product which (50.00 g) was treated with 123.21 g 2-ethylhexyl 3-mercaptopropionate [50448-95-8] giving 155.80 g oily substance (LD50 value for male rat .gtoreq.20 g/kg) contg. monobutyltin tris(2-ethylhexyl 3-mercaptopropionate) [61241-05-2] 99.13, dibutyltin bis(2-ethylhexyl 3-mercaptopropionate) [53202-61-2] 0.80, and tributyltin mono(2-ethylhexyl 3-mercaptopropionate) [61241-06-3] 0.07%. A mixt. of PVC [9002-86-2] 100, oily substance (as heat stabilizer) 2, and Ca stearate 0.5 part was kneaded to give a 0.6-mm sheet with improved heat resistance compared with a control when dioctyltin bis(isooctyl mercaptoacetate) was used as heat stabilizer under the same conditions. |            |            |                 |          |
| ST | nonpoisonous heat stabilizer PVC; organotin compd heat stabilizer; tin organo heat stabilizer; mercaptopropionatotin butyl heat stabilizer; butylmercaptopropionatotin heat stabilizer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |            |            |                 |          |
| IT | Heat stabilizers (organotin compds., for PVC)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |            |            |                 |          |
| IT | 53202-61-2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 61241-05-2 | 61241-06-3 |                 |          |
|    | RL: MOA (Modifier or additive use); USES (Uses) (heat stabilizers contg., for PVC)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |            |            |                 |          |
| IT | 9002-86-2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |            |            |                 |          |
|    | RL: USES (Uses) (heat stabilizers for, butyltin ethylhexyl mercaptopropionates as)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |            |            |                 |          |
| IT | 50448-95-8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |            |            |                 |          |
|    | RL: RCT (Reactant) (reaction of, with butyltin oxide hydroxide)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |            |            |                 |          |

IT 683-18-1 1118-46-3 1461-22-9

RL: RCT (Reactant)  
(reaction of, with sodium hydroxide)

IT 1310-73-2, reactions

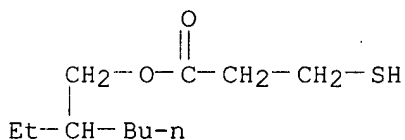
RL: RCT (Reactant)  
(with butyltin chlorides)

IT 50448-95-8

RL: RCT (Reactant)  
(reaction of, with butyltin oxide hydroxide)

RN 50448-95-8 HCAPLUS

CN Propanoic acid, 3-mercapto-, 2-ethylhexyl ester (9CI) (CA INDEX NAME)

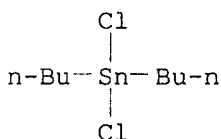


IT 683-18-1 1118-46-3 1461-22-9

RL: RCT (Reactant)  
(reaction of, with sodium hydroxide)

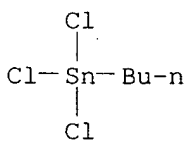
RN 683-18-1 HCAPLUS

CN Stannane, dibutyldichloro- (8CI, 9CI) (CA INDEX NAME)



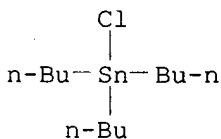
RN 1118-46-3 HCAPLUS

CN Stannane, butyltrichloro- (8CI, 9CI) (CA INDEX NAME)



RN 1461-22-9 HCAPLUS

CN Stannane, tributylchloro- (8CI, 9CI) (CA INDEX NAME)



L59 ANSWER 6 OF 9 HCAPLUS COPYRIGHT 2002 ACS

AN 1975:548458 HCAPLUS

DN 83:148458

KATHLEEN FULLER EIC 1700/LAW LIBRARY 308-4290

*Not reverse*



TI Alkyltin polysulfide thioester stabilized **composition**

IN Kugele, Thomas G.; Bresser, Robert E.

PA Cincinnati Milacron Chemicals Inc., USA

SO U.S., 6 pp. Division of U.S. 3,869,487.

CODEN: USXXAM

DT **Patent**

LA English

IC C08F

NCL 260045750S

CC 36-6 (Plastics Manufacture and Processing)

FAN.CNT 3

|      | PATENT NO.     | KIND | DATE     | APPLICATION NO. | DATE         |
|------|----------------|------|----------|-----------------|--------------|
| PI   | US 3890277     | A    | 19750617 | US 1974-508713  | 19740923 <-- |
|      | US 3869487     | A    | 19750304 | US 1973-400127  | 19730924 <-- |
| PRAI | US 1973-400127 |      | 19730924 |                 |              |

AB Organotin mercaptocarboxylic acid ester polysulfides, such as bis(methyltin diisooctylthioglycolate) disulfide (I) [55230-73-4], were prepd. and used as stabilizers for PVC [9002-86-2] and other halogen-contg. polymers. Thus, I was prepd. in 100% yield by adding 1 mole isooctyl thioglycolate [25103-09-7] to 0.5 mole MeSnCl<sub>3</sub> [993-16-8] in H<sub>2</sub>O in presence of 1 mole NaOH and treating with a soln. prepd. by heating 0.25 mole Na<sub>2</sub>S and 0.25 mole S in H<sub>2</sub>O. The prepn. and properties of 31 title compds. were described. The early and long term color of PVC samples contg. 0.095% title compds. were given from oven tests at 380.degree.F after initial milling for 5 min at 320.degree.F until catastrophic breakdown occurred.

ST tin mercaptocarboxylic polysulfide; PVC stabilizer tin polysulfide; heat stabilizer PVC

IT Heat stabilizers

(organotin mercaptocarboxylic acid ester polysulfides, for PVC)

IT 9002-86-2

RL: USES (Uses)

(heat stabilizers for, organotin mercaptocarboxylic acid ester polysulfides as)

IT 55230-73-4

RL: MOA (Modifier or additive use); USES (Uses)

(heat stabilizers, for PVC)

IT 55230-72-3 55230-74-5 55230-75-6 55230-76-7 55230-78-9

55230-79-0 55230-80-3 55231-57-7 55231-58-8 56793-35-2

RL: MOA (Modifier or additive use); USES (Uses)

(heat stabilizers, for halogen-contg. polymers)

IT 753-73-1 993-16-8

RL: RCT (Reactant)

(reaction of, with isooctylthioglycolate and sodium disulfide)

IT 22868-13-9

RL: RCT (Reactant)

(reaction of, with methyltin trichloride and isooctyl thioglycolate)

IT 37488-76-9

RL: RCT (Reactant)

(reaction of, with methyltin trichloride and isooctylthioglycolate)

IT 25103-09-7

RL: RCT (Reactant)

(reaction of, with methyltin trichloride and sodium disulfide)

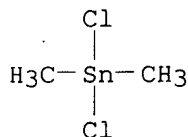
IT 753-73-1 993-16-8

RL: RCT (Reactant)

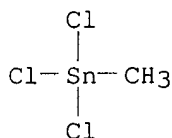
(reaction of, with isooctylthioglycolate and sodium disulfide)

RN 753-73-1 HCAPLUS

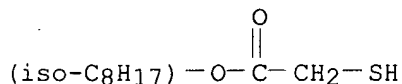
CN Stannane, dichlorodimethyl- (8CI, 9CI) (CA INDEX NAME)



RN 993-16-8 HCAPLUS  
 CN Stannane, trichloromethyl- (8CI, 9CI) (CA INDEX NAME)



IT 25103-09-7  
 RL: RCT (Reactant)  
 (reaction of, with methyltin trichloride and sodium disulfide)  
 RN 25103-09-7 HCAPLUS  
 CN Acetic acid, mercapto-, isooctyl ester (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



L59 ANSWER 7 OF 9 HCAPLUS COPYRIGHT 2002 ACS  
 AN 1974:121073 HCAPLUS  
 DN 80:121073  
 TI Structure of organotin mercapto esters  
 AU Stapfer, Christian H.; Herber, Rolfe H.  
 CS Cincinnati Milacron Chem. Inc., Cincinnati, Ohio, USA  
 SO J. Organometal. Chem. (1974), 66(3), 425-36  
 CODEN: JORCAI  
 DT Journal  
 LA English  
 CC 29-8 (Organometallic and Organometalloidal Compounds)  
 Section cross-reference(s): 22  
 AB The structural differences existing among organotin mercaptoesters  $\text{RnSn S(CH}_2\text{)}_1\text{-2COOR}'_4\text{-n}$  are reported. Infrared and Moessbauer spectroscopies revealed that thioglycolate and 3-mercaptopropionate esters adopt cyclic cis- or trans-trigonal bipyramidal as well as trans-octahedral configurations, depending on the **compn.** of the organotin compds. and their mode of prepn. Structural relationship among organotin mercaptides and thioacetates are also discussed.  
 ST tin mercapto ester structure; Moessbauer mercapto ester tin; stannane carboxyalkylenethio  
 IT Moessbauer effect  
 (structure of organotin mercapto esters in relation to)  
 IT 1185-81-5P 3644-27-7P 15481-49-9P 26896-31-1P 31614-63-8P  
 50295-26-6P 51287-84-4P 52165-03-4P 52282-41-4P 52282-42-5P  
 52282-43-6P 52282-44-7P 52282-45-8P 52282-46-9P 52282-47-0P

*Not reverse*

52282-48-1P 52282-49-2P 52282-50-5P 52282-51-6P **52282-52-7P**  
**52282-53-8P** 52306-01-1P 52306-02-2P 52306-03-3P  
 52306-04-4P 52306-05-5P 52340-38-2P 52340-39-3P 52389-28-3P  
 52437-16-8P 52437-17-9P 52437-52-2P 52795-25-2P

RL: SPN (Synthetic preparation); PREP (Preparation)  
 (prepn., ir and Moessbauer spectra of, structure of)

IT **2365-48-2** 7383-63-3

RL: RCT (Reactant)  
 (reaction with dichlorodialkylstannanes)

IT **25103-09-7**

RL: RCT (Reactant)  
 (reaction with dichlorostannanes)

IT **753-73-1 1118-46-3**

RL: RCT (Reactant)  
 (reaction with mercapto carboxylates)

IT **683-18-1 1135-99-5**

RL: RCT (Reactant)  
 (reaction with mercaptocarboxylates)

IT 56-35-9

RL: RCT (Reactant)  
 (reaction with mercaptocarboxylic esters)

IT **993-16-8**

RL: RCT (Reactant)  
 (reaction with thioglycoates)

IT 100-53-8 112-55-0 **30374-01-7**

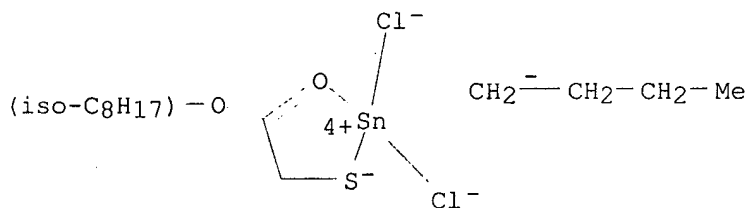
RL: RCT (Reactant)  
 (reaction with tin compds.)

IT **52282-52-7P 52282-53-8P**

RL: SPN (Synthetic preparation); PREP (Preparation)  
 (prepn., ir and Moessbauer spectra of, structure of)

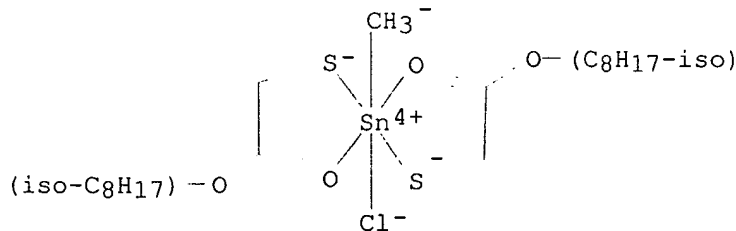
RN 52282-52-7 HCAPLUS

CN Tin, butyldichloro(isooctyl mercaptoacetato-O',S)- (9CI) (CA INDEX NAME)



RN 52282-53-8 HCAPLUS

CN Tin, chlorobis(isooctyl mercaptoacetato-O',S)methyl- (9CI) (CA INDEX NAME)

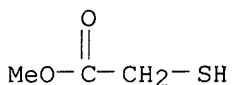


IT 2365-48-2

RL: RCT (Reactant)  
(reaction with dichlorodialkylstannanes)

RN 2365-48-2 HCAPLUS

CN Acetic acid, mercapto-, methyl ester (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

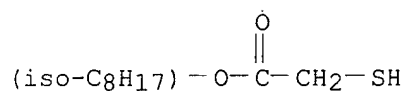


IT 25103-09-7

RL: RCT (Reactant)  
(reaction with dichlorostannanes)

RN 25103-09-7 HCAPLUS

CN Acetic acid, mercapto-, isooctyl ester (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

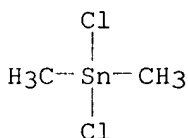


IT 753-73-1 1118-46-3

RL: RCT (Reactant)  
(reaction with mercapto carboxylates)

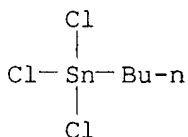
RN 753-73-1 HCAPLUS

CN Stannane, dichlorodimethyl- (8CI, 9CI) (CA INDEX NAME)



RN 1118-46-3 HCAPLUS

CN Stannane, butyltrichloro- (8CI, 9CI) (CA INDEX NAME)

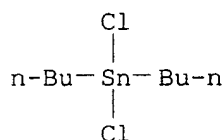


IT 683-18-1 1135-99-5

RL: RCT (Reactant)  
(reaction with mercaptocarboxylates)

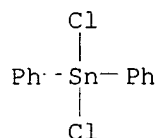
RN 683-18-1 HCAPLUS

CN Stannane, dibutyldichloro- (8CI, 9CI) (CA INDEX NAME)



RN 1135-99-5 HCAPLUS

CN Stannane, dichlorodiphenyl- (8CI, 9CI) (CA INDEX NAME)



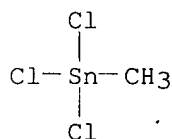
IT 993-16-8

RL: RCT (Reactant)

(reaction with thioglycoates)

RN 993-16-8 HCAPLUS

CN Stannane, trichloromethyl- (8CI, 9CI) (CA INDEX NAME)



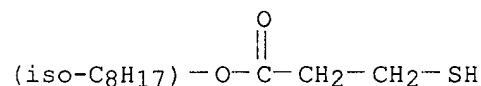
IT 30374-01-7

RL: RCT (Reactant)

(reaction with tin compds.)

RN 30374-01-7 HCAPLUS

CN Propanoic acid, 3-mercapto-, isooctyl ester (9CI) (CA INDEX NAME)



L59 ANSWER 8 OF 9 HCAPLUS COPYRIGHT 2002 ACS

AN 1970:478120 HCAPLUS

DN 73:78120

TI Organotin compounds as stabilizers for polymeric compositions

PA Imperial Chemical Industries Ltd.

SO Fr., 24 pp.

CODEN: FRXXAK

DT Patent

LA French

IC C08F

CC 36 (Plastics Manufacture and Processing)

FAN.CNT 1

PATENT NO.

KIND

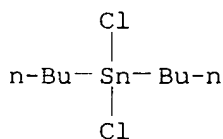
DATE

APPLICATION NO.

DATE

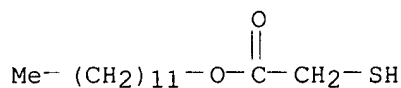
*Not reverse*

PI FR 1581953 A 19690919 FR 1968-167979 19680927  
PRAI GB 1967-43933 19670927  
AB An alkyltin oxide is treated with an org. compn. contg. an active H to give a stabilizer used to prevent thermal degradation in polymers. Thus, trimethylolpropane trimaleate 4.28, ethylene glycol bis(2-mercaptopropionate) 7.15, cyclohexyl maleate (I) 5.58, and Bu<sub>2</sub>SnO 14.9 parts, were refluxed in 200 ml PhMe to give 28 parts of a pale brown viscous oil. The oil (1 part) was mixed with 100 parts poly(vinyl chloride) contg. 0.25 part stearic acid and the polymer was stable and colorless after 1.40 min at 175.degree.. In the absence of a stabilizer the same polymer turned black after 20 min. Similar compns. were prepd. using lauric acid, lauryl alc., or lauryl mercaptan in place of I, and dioctyltin oxide.  
ST organotin stabilizers PVC; stabilizers organotin PVC; PVC organotin stabilizers  
IT Lauric acid  
Maleic anhydride  
RL: USES (Uses)  
(reaction products with stannanes, stabilizers, for chloroethylene polymers)  
IT 77-58-7 683-18-1 818-08-6 870-08-6 2273-43-0 3377-12-6  
RL: USES (Uses)  
(reaction products with active hydrogen compds., stabilizers, for chloroethylene polymers)  
IT 60-24-2 22504-50-3  
RL: USES (Uses)  
(reaction products with stannane, stabilizers, for chloroethylene polymers)  
IT 79-42-5 98-91-9 111-29-5 111-48-8 112-53-8 112-55-0 126-30-7  
1892-29-1 2424-59-1 3570-55-6 3746-39-2 7659-86-1  
14440-77-8 15498-42-7 20170-32-5 27309-95-1 28574-65-4  
29275-72-7 29275-73-8 29275-74-9 29275-75-0 29275-76-1  
29275-77-2 29275-79-4 29303-14-8 29367-13-3  
RL: USES (Uses)  
(reaction products with stannanes, stabilizers, for chloroethylene polymers)  
IT 9002-86-2, uses and miscellaneous  
RL: USES (Uses)  
(stabilizers for, stannane deriv.-active hydrogen compd. reaction products as)  
IT 683-18-1  
RL: USES (Uses)  
(reaction products with active hydrogen compds., stabilizers, for chloroethylene polymers)  
RN 683-18-1 HCAPLUS  
CN Stannane, dibutyldichloro- (8CI, 9CI) (CA INDEX NAME)



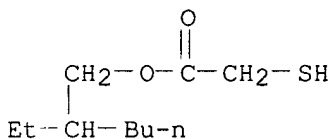
IT 3746-39-2 7659-86-1 29367-13-3  
RL: USES (Uses)  
(reaction products with stannanes, stabilizers, for chloroethylene polymers)  
RN 3746-39-2 HCAPLUS

CN Acetic acid, mercapto-, dodecyl ester (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



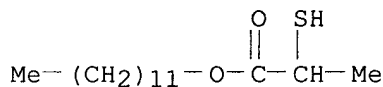
RN 7659-86-1 HCAPLUS

CN Acetic acid, mercapto-, 2-ethylhexyl ester (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



RN 29367-13-3 HCAPLUS

CN Propanoic acid, 2-mercapto-, dodecyl ester (9CI) (CA INDEX NAME)



L59 ANSWER 9 OF 9 HCAPLUS COPYRIGHT 2002 ACS

AN 1969:115906 HCAPLUS

DN 70:115906

TI Stabilizers for halogenated polymers; preparation of monoalkyltin polymers

IN Eggensperger, Heinz; Andreas, Holger; Franzen, Volker; Neubert, Guenther

PA Deutsche Advance Produktion G.m.b.H.

SO Fr., 7 pp.

CODEN: FRXXAK

DT **Patent**

LA French

IC C08F

CC 36 (Plastics Manufacture and Processing)

FAN.CNT 1

|      | PATENT NO. | KIND | DATE     | APPLICATION NO. | DATE |
|------|------------|------|----------|-----------------|------|
| PI   | FR 1529957 |      | 19680621 |                 |      |
| PRAI | DE         |      | 19660524 |                 |      |

AB  $\text{RSnCl}_3$ , where R is a Me, Bu,  $\text{C}_8\text{H}_{17}$ ,  $\text{C}_{12}\text{H}_{25}$ , or  $\text{C}_{18}\text{H}_{37}$  group, is heated in an aq. soda soln. to give a monoalkyltin polymer (alkylstannous acid polymer) having the **compn.**  $(\text{RSnO}_{1.5})_n$  where  $n = 2-30$ . This polymer is dried and then reacted in toluene or a similar solvent with less than a stoichiometric amt. (based on the no. of O atoms) of isooctyl thioglycolate (I), 2-ethylhexanoic acid, isooctyl .beta.-mercaptopropionate, laurylmercaptan, lauric acid, or a similar compd. The  $\text{H}_2\text{O}$  of reaction is removed, and the solvent is distd. to give **compns.** (mostly liq.) which give a synergistic stabilizing effect when used with a known stabilizer, such as dibutyltinbis(thioglycolic acid) isooctyl ester (II) or dilauryltinbis(thioglycolic acid) isooctyl ester, to increase the thermal stability and light stability of poly-(

*No + reversal*

vinyl chloride) (III), chlorinated polyethylene, and other halogenated polymers. The synergistic stabilizing effect gives the same degree of stability with the use of .apprx.50% as much of the known stabilizers (contg. 10-20% of the **compns.** prepd. above) as is required when the known stabilizers are used alone. Thus, 282.2 g. BuSnCl<sub>3</sub> was heated to 90.degree. and added to an aq. soln. of 170 g. NaOH. The mixt. was cooled to 25.degree., aspirated, washed with H<sub>2</sub>O until neutral, and dried at 100.degree. in vacuo. This butylstannous acid polymer (100 g., 1.5 mole) was treated with 205 g. I in toluene. The H<sub>2</sub>O of reaction was removed continuously, and the solvent was finally distd. The residual oil was filtered to give a colorless oil contg. 30.5% Sn. This oil 0.1, II 0.6, and a suspension of III (K value 65) 100 parts were mixed and made into a 0.3-mm. film. This film was colorless after 60 min. in air at 180.degree., but a control film contg. 0.7 part III and none of the oil prepd. above was yellow-brown in color.

ST halogenated polymer stabilizers; monoalkyltin polymers; PVC stabilizers; stannous acid alkyl polymers; films PVC colorless

IT 27084-96-4

RL: USES (Uses)

(reaction products with isooctyl thioglycolate, stabilizers from dialkyltin thioglycolates and, for vinyl chloride polymers)

IT 25103-09-7

RL: USES (Uses)

(reaction products with monoalkyltin polymers, stabilizers from dialkyltin thioglycolates and, for vinyl chloride polymers)

IT 9002-86-2, uses and miscellaneous

RL: USES (Uses)

(stabilizers for, isooctyl thioglycolate-monoalkyltin polymer reaction products as, synergistic)

IT 27084-96-4

RL: USES (Uses)

(reaction products with isooctyl thioglycolate, stabilizers from dialkyltin thioglycolates and, for vinyl chloride polymers)

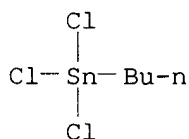
RN 27084-96-4 HCAPLUS

CN Stannane, butyltrichloro-, polymers (8CI) (CA INDEX NAME)

CM 1

CRN 1118-46-3

CMF C4 H9 Cl3 Sn



IT 25103-09-7

RL: USES (Uses)

(reaction products with monoalkyltin polymers, stabilizers from dialkyltin thioglycolates and, for vinyl chloride polymers)

RN 25103-09-7 HCAPLUS

CN Acetic acid, mercapto-, isooctyl ester (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



